Educational Number

This Issue Exceeds 99,500 Copies

THE JOURNAL

OF THE

American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 111, No. 9 | COPYRIGHT, 1938, BY AMERICAN MEDICAL ASSOCIATION 535 North Dearborn Street, Chicago, Ill. | AUGUST 27, 1938

CONTENTS AND SUBJECT INDEX

Undergraduate Teaching of Obstetrics. E. D. Plass, M.D., Iowa City 761

Health of the Migrant. Walter M. Dickie, M.D., Sacramento, Calif.763
Discussed by Drs. Gifford, McCormack, Cohen and Dickie.

An Experimental Study of the Behavior of Sulfanilamide. Fred L. Adair, M.D.; H. Close Hesseltine, M.D., and Lucile R. Hac, Ph.D., Chicago.....766
Discussed by Drs. Calvery, Pratt, Plass and Hesseltine.

Therapeutic Effectiveness and Toxicity of Sulfanilamide and Several Related Compounds. Edward G. Bannick, M.D., Seattle; Alex E. Brown, M.D., Rochester, Minn., and Frank P. Foster, M.D., Montclair, N. J.....770
Discussed by Drs. Wilbur, Osgood, Haden and Bannick.

Vitamin A Deficiency and Dark Adaptation. Bertha L. Isaacs, M.B.; Frederic T. Jung, M.D., and A. C. Ivy, M.D., Chicago.....777

Duration of Smallpox Immunity. D. T. Loy, M.D., and M. W. Husband, M.D., Manhattan, Kan...780

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

A Shoulder Abduction Cap. L. E. Papurt, M.D., Cleveland.....782

Concurrent Tic Douloureux and Ménière's Disease Treated Surgically. H. Mason Smith, M.D., and Millard White, M.D., Tampa, Fla. 782

COUNCIL ON PHYSICAL THERAPY 783

COUNCIL ON PHARMACY AND CHEMISTRY 784

EDITORIALS

Examiners and Grading.....848

Immunization of Nasal Mucosa..848

France Makes Diphtheria Immunization Compulsory.....849

CURRENT COMMENT

Doctors in Embryo.....850

Respiration in Silicosis.....850

Graduate Medical Education.....850

BUREAU OF LEGAL MEDICINE AND LEGISLATION 871

(Subject Index on next page)

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

Annual Presentation of Educational Data by the Council on Medical Education and Hospitals.....785

Graduate Medical Education: Extension Courses for Physicians....801

Essentials of an Acceptable Medical School (Revised to June 1938).810

Essentials of an Acceptable School of Occupational Therapy.....812

Approved Schools for Occupational Therapy, Physical Therapy and Clinical Laboratory Technicians.814

Description of Medical Colleges.815

Hospitals Approved for Training Interns 822

Hospitals Approved for Residencies in Specialties.....832

THE STUDENT SECTION

A School Health Program. Don W. Gudakunst, M.D., Lansing.....881

Comments and Reviews.....886

Medical College News.....891

ADVERTISERS' INDEX PAGES 58 AND 59

JUST READY!—Norris & Landis' on Chest Diseases and Physical Diagnosis

Remade New (6th) Edition—In this successful text on *Diseases of the Chest and the Principles of Physical Diagnosis* you will find detailed discussions of inspection, palpation, percussion and auscultation—their *technic and application* in the diagnosis of diseases of the chest. More than that, complete chapters are included on the use of the electrocardiograph and of the x-ray.

Then the authors devote *two extensive sections* to Diseases of the Bronchi, Lungs, Pleura, Diaphragm and Diseases of the Heart. Causes, morbid anatomy, the symptomatology, physical signs and the methods of eliciting them as well as other important data that contribute to more specific and accurate diagnoses are given full consideration.

The *New (6th) Edition* represents the most severe revision ever given this book. The discussions of bronchial asthma, bronchiectasis, lung abscess and cystic disease, relations of nasal and accessory sinus disease to infections of the lower air tract, the chapter on coronary disease and that on the electrocardiograph have been *completely rewritten.* The chapter on x-ray diagnosis of the heart and great vessels is *entirely new;* and there has been extensive revision of hypertensive heart disease, functional tests of the circulation with venous pressure and many other subjects. There are 477 illustrations.

By GEORGE W. NORRIS, M.D., formerly Professor of Clinical Medicine in the University of Pennsylvania; and H. R. M. LANDIS, M.D., formerly Professor of Clinical Medicine in the University of Pennsylvania. Revised with the assistance of SIMON S. LEOPOLD, M.D., Assistant Professor of Medicine and Head of the Department of Physical Diagnosis, University of Pennsylvania. With a chapter on the *Transmission of Sounds Through the Chest* by CHARLES M. MONTGOMERY, M.D., formerly Physician to the Phipps Institute; and chapters on the *Electrocardiograph* and *X-Ray* by THOMAS M. MCMILLAN, M.D., Chief Cardiologist to the Philadelphia General Hospital. Octavo of 1050 pages, with 477 illustrations.

See List of SAUNDERS TEXTBOOKS on Pages 3, 4 & 5

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "MI," Medicolegal; "ME," Medical Economics; "OS," Organization Section; "SS," Student Section.

Adrenal cortex extract for diphtheria....ab-879
insufficiency, chloride, sodium and potassium in blood.....C-863
Air conditioning and industrial health.....C-863
Alcohol, subarachnoid injections, bladder and rectal complications after.....866
Alopecia areata 866
Alpha Omega Alpha awards.....SS-892
Angina, Vincent's, zinc peroxide in.....ab-876
Army, U. S., reserve corps.....855; SS-891
U. S., dental corps, brigadier general.....855
Barbiturates in breast milk.....ab-875
Bile salts in peptic ulcer.....ab-876
Billroth portrait on Austrian coin.....C-863
Blood, chloride, sodium and potassium in, in adrenal insufficiency C-863
pressure, high, and pituitary hormones..ab-880
pressure, high, sympathectomy for.....ab-873
sulfanilamide in *766
transfusion in heparin.....ab-877
vitamin C and.....ab-879
Board Examinations.....**867**
Book Notices.....**868**
Books Received.....**Adv. page 56**
Breast, massive hypertrophy.....864
Bromides in breast milk.....ab-875
Bronchitis, mixed vaccine in.....866
Bureau of Legal Medicine and Legislation..**871**
Burr Prize, intern wins.....SS-891
Bursitis, subdeltoid, shoulder abduction cap.*782
C. C. C. "surgeon" court-martialed.....852
California, health of migrant.....*763
Cancer, carcinosarcoma ab-873
Minnesota fellows to study.....891
Cannabis, burn six tons of marihuana.....853
Chorea minor, etiology.....ab-880
Code, C. F., Theobald Smith Medal to..SS-891
Coins, doctors on.....C-863
Colitis, ulcerative, sulfanilamide for.....*774
Communicable Disease, control in school..SS-884
Compensation of Physicians; hospital expense not included in fee.....MI-871
Contracts: "good will" of deceased physician; salability MI-871
Corns, ultraviolet lamp and other treatment.865
Coroners to meet in St. Louis.....855
Correspondence.....**863**
Council on Pharmacy and Chemistry.....**784**
Council on Physical Therapy.....**783**
Criminology, International Congress of.....860
Deaths **861**
Detroit, school health program.....SS-881
Dextrose, intravenously, continued use.....866
Diphtheria, immunization; prophylaxis...ab-878
immunization compulsory, France.....E-849
immunization in public schools.....SS-884
treatment, adrenal cortex extract plus vitamin C ab-879
Echinococcus cyst, injections of.....865
Edema, nutritional ab-879
Embolism, pulmonary air.....857
Encephalitis complicating measles.....ab-877
Examiners and grading E-848
Eyelids, allergic blepharitis, ephedrine sulfate prevents 866
Eyes, dark adaptation and vitamin A.....*777
conditions, course on 853
Fees, tuition *798
Fellowship, Koessler, awarded.....SS-892
Fetus, effect of sulfanilamide.....*769
Foreign Letters.....**856**
French Medical Congress.....857
Gallbladder, roentgen study, physiologic..ab-879
Galvanizing sheet metal, dangers.....865
Gingivitis, zinc peroxide for.....ab-876
Gonorrhea, treatment, sulfanilamide.*766; ab-873
Government Services.....**855**
Graduates by states.....*793; *794
foreign, licensure of.....*800
Negro *798
serving internships *794; *795
sex distribution *795
statistics, 1905-1938 .....*797
with baccalaureate degrees.....*796; *797
women *795; *796
Greenland, annual expedition to.....SS-891
Greer, Clay M., wins trip to Switzerland..SS-891
Harvard University, guide service.....SS-892
Health of migrant.....*763
program, school SS-881
state departments, extension courses by..*801
Heart muscle infarct, thoracic leads in diagnosis ab-880
Heller, F. S., 50 years in practice.....853
Hemangioma of vertebral column.....ab-880
Hemeralopia, vitamin A deficiency and.....*777
Heparin, transfusion with.....ab-877
Hospitals and air raid casualties.....856
approved for residencies in specialties.....*832; E-850
approved for training interns.....*822; *830
building program, Michigan.....852
Missouri adopts district plan.....852
nationalization, protest against, France....857
personnel, tuberculosis in.....ab-873
Hyperthyroidism, vitamin C metabolism in.ab-874
Immunization, local, of nasal mucosa.....E-848
Industrial health, air conditioning and.....C-863
health, committee on, Md.....852
migrant, health of.....*763
Infant welfare, Rumania.....859
Influenza in nurslings.....ab-878
Insurance, accident: varicosity; death from thrombosis following accident.....MI-871
International Congress of Examiners for..857
Interns at Rhode Island Hospital, reunion.SS-891
status of, California.....SS-892
Internships, graduates serving.....*794; *795
hospitals approved for.....*822; *830
present training in obstetrics.....SS-890
required *794
Kidney tuberculosis 860
Kirsch, R. E., Koessler fellowship to....SS-892
Koppelman, Samuel, wins Burr prize....SS-891
Laboratory technicians, schools for.....*814
Larkin's questionnaire on obstetrics....SS-890
Loyola University, Mercy Hospital.....SS-891
McKinley, Earl B., lost on clipper.....SS-891
Marriages **860**
Maternity center, Arkansas 851
Measles, nervous complications.....ab-877
Medical Education *785; **E-850**
curriculum *790
developments *790
graduate; extension courses.*801; *802; E-850
length of course.....*790
preliminary education *785
teaching obstetrics *761
training interns in obstetrics.....SS-890
Medical Examinations and Licensure.....**867**
Medical Service, teaching need for.....SS-882
Medicolegal Abstracts.....**871**
Meetings, Coming Meetings.....**872**
Mengis, C. L., child welfare director.....851
Meningitis, antiserum treatment.....ab-879
Metal, danger from galvanizing.....865
fume fever; prevention.....ab-875
di-Methyl-di-sulfanilamide *771
Midwifery, school of, Rumania.....859
Migrant, health of.....*763
Milk, human, drugs in.....ab-875
human, sulfanilamide excretion in.....*766
Mouth infections, zinc peroxide in.....ab-876
Myalgia, epidemic ab-875
Negro students and graduates.....*798
Neoprontosil *772
Nervous System complications of measles.ab-877
Neuralgia, trigeminal, with Ménière's disease *782
Neuropsychiatric Unit, Chicago.....851
New and Nonofficial Remedies.....**784**
News **851**
Nose, local immunization of mucosa.....E-848
Nostrum evil, England.....856
Obstetrics, opinions on present training..SS-890
undergraduate teaching *761
Occupational Therapy, schools of....*812; *814
American Association 855
Ophthalmia, gonorrheal, sulfanilamide in..ab-873
Ovary, chocolate cysts.....863
Oxygen consumption in silicosis.....E-850
Pancreas, secretion test of function.....857
Paraplegia, spastic 865
Peptic Ulcer, treatment, bile salts.....ab-876
Phenol, toxicity, in prescription.....865
Physical Therapy technicians, schools for...*814
American Congress of.....855
Physician, educational task.....SS-883; SS-885
on coins C-863
practicing, extension courses.*801; *802; E-850
what should he be taught?.....SS-889
women 852
Piedmont Assembly, S. C.....854
Pituitary hormones and hypertension.....ab-880
Placenta, permeable to sulfanilamide.....*766
Plague infection, Utah.....854
Pneumoconiosis, respiratory disability in silicosis E-850
Poliomyelitis after tonsillectomy.....ab-875
epidemic, campaign against, Germany....858
Prostate cancer; adenoma.....860
Psychiatry, Woolley scholarship in.....SS-891
Psychosis, vitamin C in urine in.....ab-877
Queries and Minor Notes.....**863**
Radiotherapy, institute for, opened.....856
Residencies in specialties.....*832; E-850
Rhinitis, allergic, in farm boy.....864
Rickettsia in trachoma.....ab-874
Sarcoma, carcinosarcoma ab-873
Schools for technicians.....*814
health program SS-881
of basic medical sciences.....*791
Schools, Medical, acceptable, essentials.*790; *810
description *815
extension courses for practitioners.....*802
fees *798
foreign, American students in.....*799; *800
internship required *794
statistics *786; *791
statistics, 1905-1938 .....*797
survey *790
Science, basic medical, schools of.....*791
Shaughnessy, H. J., again director.....851
Shoulder abduction cap.....*782
Shoulders, H. H., honored.....854
Smallpox immunity, duration.....*780
recurrent, and after vaccination.....863
vaccination in public schools.....SS-885
vaccination: schools; exclusion of unvaccinated pupil MI-872
Smith, Theobald Medal.....SS-891
Social welfare conference, Md.....852
Societies, Medical, state, directing graduate courses *801; *802
Society Proceedings.....**872**
Specialties, hospitals approved for residencies in *832; E-850
Spine, hemangioma ab-880
State Board Examinations.....**867**
State Boards, internships required.....*794
Straub, Hermann, death.....859
Student Section.....**881**
Students, syphilis in.....SS-889
examiners and grading.....E-848
Students, Medical, American, in foreign schools *799; *800
birthplace of.....*788; *791; *792
by classes, 1930-1938.....*797; *798
by states *793; *794
Cornell to exchange with Havana.....853
medical care for, Maryland.....SS-892
Negro *798
part-time, special and graduate, statistics.*796
resident and nonresident.....*792; *793
sex distribution *795
statistics, 1905-1938 .....*797
tuberculosis in SS-886
what should they be taught?.....SS-889
women *795; *796
Sulfanilamide, behavior *766
treatment, effectiveness; toxicity.....*770
treatment of gonorrheal ophthalmia.....ab-873
urinary changes due to.....ab-874
Syphilis in Rumania.....859
in Wisconsin students.....SS-889
open campaign against, N. C.....853
Technicians, schools for, approved.....*814
Teeth, grinding, in child.....866
Temple University, faculty changes.....SS-892
Tendon, supraspinatus, rupture, shoulder abduction cap for.....*782
Terpin hydrate in iso-alcoholic elixir.....866
Tonics and Sedatives.....**Adv. page 48**
Trachoma, rickettsias in.....ab-874
Tubercle Bacillus, healthy expectorators..ab-878
Tuberculosis in hospital personnel.....ab-874
hospital-sanatorium directory 855
in medical students.....SS-886
insurance against obligatory.....860
Typhoid, outbreak 853; 855
Ultraviolet lamp for corns.....865
University of Texas, alumni meetings....SS-892
of Wisconsin students, syphilis in.....SS-889
Urine changes due to sulfanilamide.....ab-874
vitamin C in psychosis.....ab-877
Urologists, Italian, meet.....860
Urology, American Board of.....855
Vertigo, aural, tic douloureux with Ménière's disease *782
di Vestea, Alfonso, death.....860
Vitamin A deficiency and dark adaptation..*777
C and blood.....ab-879
C metabolism, hyperthyroidism in.....ab-874
C in urine in psychosis.....ab-877
C treatment of diphtheria.....ab-879
Wishard, John G., honored 853
Wollman Foundation organized.....853
WPA worker denied choice of physician....853

THE JOURNAL of the American Medical Association is published weekly by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Subscription price, $7.00 a year. 25c a copy. Canadian $8.50. Foreign $11.00. Entered as second class matter June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879.

CRESCENT surgeons' blades
RIGIPOISED MIKRO-KEEN and costs LESS!
WRITE FOR FREE SAMPLE
Crescent Surgical Sales Co., Inc.
440 FOURTH AVENUE NEW YORK, N. Y.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 111, No. 9 — COPYRIGHT, 1938, BY AMERICAN MEDICAL ASSOCIATION — CHICAGO, ILLINOIS — AUGUST 27, 1938

THE UNDERGRADUATE TEACHING OF OBSTETRICS

CHAIRMAN'S ADDRESS

E. D. PLASS, M.D.

IOWA CITY

During the past decade especially, public attention has been drawn to the high maternal mortality in this country, and many alleged contributory factors have been advanced. In certain quarters there has been a tendency to place a great part of the blame for the admittedly undesirable situation on those who are undertaking the undergraduate teaching of obstetrics. Much of this criticism has come from persons who are not now and never have been engaged in this type of instruction and who therefore do not appreciate the difficulty, in fact the practical impossibility, of providing truly adequate obstetric instruction in any medical school. It is my purpose to discuss several factors related to this problem and to offer a considered defense of the men now actually engaged in obstetric teaching.

Both the profession and the public have been reluctant to admit obstetrics to a position of parity with the other clinical disciplines, an attitude which is undoubtedly engendered by the inevitable fact that child-bearing is physiologic in the vast majority of cases and that skilled attendants are therefore rarely a medical necessity. The falsity of this argument should be obvious, since modern obstetrics is actually a field of preventive medicine, with the emphasis on avoidance of the serious complications of pregnancy and parturition—infection, hemorrhage and the toxemias—which are responsible for two thirds of all maternal deaths. This failure to adopt the principles of disease prevention is not limited to obstetrics, but there is no other field in which curative procedures should be less important.

Instruction in any clinical discipline involves didactic teaching to develop a concept of the physiologic aspects of a phenomenon or of the clinical picture of a disease, and practical contact with patients to emphasize the points previously stressed. It now seems apparent that a well rounded course in any medical subject must include both methods of approach, although there is still no general agreement as to the amount of each that may be desirable. Until early in this century purely didactic instruction alone was available, and many present-day practitioners had no actual contact with human distress and disease until after their graduation. It is of historical interest to note that in its early days this Association actually went on record as opposing other than purely didactic instruction in obstetrics and that a former chairman of this section, in reminiscing on his early difficulties, narrated vividly his experience with a group of Philadelphia matrons who threatened to burn his maternity hospital because he was teaching his students the actual technic of delivery. That attitude has fortunately disappeared, and its disappearance has opened the way for the many educational experiments now in progress.

Generally speaking, it may be said that the didactic teaching of obstetrics in the medical schools of the country is as adequate as that of any other major clinical subject. Textbooks are well written and authoritative, and the instructional staffs are progressive, interested and alert. This point of view has been developed in the course of an eight year experience as examiner in obstetrics on the National Board of Medical Examiners. Assuming that the questions given in the clinical subjects are equally difficult and that the grading is equally strict, the percentages of nonpassing grades should be significant. Among about 2,300 candidates examined during the past five years, 8.6 per cent were failed in obstetrics, as against 7.4 per cent and 13.6 per cent in surgery and medicine, respectively. The recital of these figures does not imply that the teaching of surgery is superior or that of medicine inferior but merely stresses that obstetrics maintains a median position and is presumably as well taught as other clinical subjects. The failures were not evenly distributed among the graduates of the various medical schools represented, but no one institution was especially notable for its high percentages of successes or failures.

Stephen Rushmore,[1] secretary of the Massachusetts Board of Registration in Medicine, commented at some length on the written answers to the question "Give in detail your treatment of a patient in whom there appeared no sign of separation of the placenta twenty minutes after the birth of the child." Without indicating what type of answer might be acceptable, he recorded that 182 of 250 candidates failed. The situation described is one "with which any physician practicing obstetrics is likely to be very frequently confronted," but there is considerable doubt as to whether any group of trained obstetricians would agree on the treatment "in detail." Nevertheless, the commentator remarked "However excellent the teaching of obstetrics may be, in some respects, on this elementary problem, it has not been effective for this group of candidates" and then concluded "Perhaps more effective teaching of the fundamentals of practice is one of the lines along which progress will result in the saving of more maternal lives." It should be noted that in 1937 Massachusetts had a considerably higher percentage of failures

Read before the Section on Obstetrics and Gynecology at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 16, 1938.

1. Rushmore, Stephen: A Note on the Teaching of Obstetrics, New England J. Med. **217**:731 (Nov. 4) 1937.

at the state board examinations (42.1 per cent) than any other state and that 300 among the 520 candidates applying for registration were from unapproved schools.

The problem of practical training, which is also implicated in the question cited, is naturally the more difficult, and from the statistical approach it seems almost insoluble. Pregnancy and parturition are essentially physiologic in character, with the major life-threatening complications of such infrequent occurrence that only the larger hospital centers can have anything approaching an adequate experience. Even if all hospital deliveries in the country could be used for student teaching to the exclusion of any other group, each graduate would be only poorly prepared for handling other than the simpler clinical problems. In 1937 there were 932,912 births in all the hospitals in the United States, a clinical material which would have provided slightly less than 175 cases for each of the 5,377 graduates. This exclusive experience would have made these young physicians capable of conducting a normal labor safely but still unequal to handling the more infrequent and serious obstetric complications. The average student would have performed from twenty to fifty forceps deliveries, seven breech extractions, two podalic versions and three cesarean sections, certainly not sufficient to make him a capable operator. On the other hand, only one student in two would have managed a single case of placenta praevia or eclampsia, one in three a really difficult vaginal delivery, one in four a serious case of puerperal infection and one in every ten or twenty a ruptured uterus or a hydatidiform mole. Under such an arrangement, it is apparent that no one could be well trained. As a corollary, it is obvious that there is not sufficient clinical material to make each graduate a competent obstetric specialist. The Council on Medical Education and Hospitals has set a minimum of fifteen obstetric cases for each senior student as the goal of those schools which would maintain their approved status, and few graduates have more actual obstetric experience than this before graduation.

The teachers of obstetrics realize the futility of attempting to make obstetric specialists out of undergraduates, and yet their critics are, at least by implication, insisting that this should be an objective of the instructional staffs. No other medical subject is taught with so much attention to preparing the student for actual practice as is obstetrics, and yet the others are not subjected to so much adverse criticism. The surgical staff is not expected to provide practical experience in the performance of major operations or in the care of fractures and other serious traumatic lesions; in ophthalmology the student is frequently not even taught the principles of refraction; in otolaryngology he does not even remove tonsils, and in urology his experience is limited to catheterizations of the bladder and prostatic massage. Yet by inference these subjects are well taught, while obstetric teaching is condemned. Is it reasonable to expect that the medical schools can graduate men and women thoroughly trained in obstetrics but mere tyros in the other fields of practice?

The family physician has been the family accoucheur and this relationship has been carefully guarded, since it helps to keep the family under his medical wing and to preserve the desirable patient-physician relationship. Moreover, child-bearing is by tradition a function for the home and remains practically the only form of surgical experience now attempted outside hospital surroundings. The majority of the general practitioners now assuming the obstetric care of the nation had only a meager didactic training and no clinical experience before entering practice, and yet the lay public accepted them and relied on them. The fact that they have done as well as they have is a real tribute to their intelligence and to their ability to learn through the hard knocks of inescapable necessity. Nevertheless, there must be some doubt as to whether the real emergencies are being handled in accordance with the best obstetric thought and practice. It is rare to find an older physician who has not delivered from one to three thousand women without "losing a single mother" and who is not skeptical about the validity of the maternal mortality statistics reported by the Bureau of Census. The old argument as to whether home delivery is actually safer than delivery in a hospital cannot be settled, for lack of adequate data, but there can be no doubt that the relatively infrequent obstetric emergencies cannot be handled satisfactorily and safely in the home.

The struggle to reduce maternal death rates, when viewed in terms of general practice, involves experiences so isolated that their significance may well be lost. Assuming that the practitioner has fifty obstetric cases annually, the chance is that he will observe only one truly serious complication each year and that he will not have more than one maternal death every four or five years. Such isolated experiences are not impressive and are soon forgotten. Moreover, their rarity prevents the physician from acquiring that knowledge of diagnosis and treatment which is so essential if these occasional patients are to be saved. Under prevailing conditions, the wonder is not that so many women die as a result of child-bearing but that so many are carried safely through the perils of procreation.

The general practitioner has in the past done well and is to be complimented, but there is some doubt as to whether the objectives of the present movement to save the lives of mothers can be entrusted entirely to his care. If one assumes the correctness of this discussion and admits the practical inability to provide adequate obstetric training for physicians who will enter general practice, it would seem doubtful that much further progress can be expected under the present system. The ray of hope in the situation would seem to emanate from the fact that increasingly large numbers of young men with excellent preliminary medical education are being trained in the larger teaching centers and are scattering widely over the country. Persons interested in these problems would be the last to suggest that all obstetric work be placed in the hands of the obstetric specialists, although many feel that some system should be developed which would make expert advice available for every pregnant and parturient woman in the country on the suggestion of the attending physician.

There are two real obstacles to such a program, and while neither would seem unsurmountable the solutions to be suggested involve considerable changes in medical thought. In the first place, consultation with the obstetric specialist invades to some extent the traditional patient-physician relationship, which still implies professional omniscience, and entails the risk that the patient may be so impressed by the consultant's personality or knowledge that she will seek him directly when she becomes pregnant again and the referring physician will lose a patient. If and when the practitioner comes to think first of the good of his patient and only secondarily of his local professional prestige, this difficulty will disappear and obstetric patients will

receive the best advice which the community affords, certainly the goal toward which the profession is striving and the desirability of which the public appreciates and understands. The second problem, involving the cost of such consultations for all difficult obstetric cases irrespective of financial status, presents entirely different angles. The obstetric consultant can hardly be expected to give his time and to expend his energies entirely without remuneration, and yet many patients cannot afford to pay even a modest fee. One suggestion which has been offered by certain groups implies that situations of this character may be the concern of some governmental agency and that nominal payments to both the referring physician and the consultant would be in order. It remains to be seen whether this is the proper solution, but there can be no doubt that some attention should be given to providing an answer, so that adequate obstetric care may be available to all women endangered by the more serious complications of child-bearing.

An attempt has been made to develop the thesis that didactic undergraduate obstetric teaching is on a par with instruction in the other medical clinical branches but that there is not the slightest chance for the clinical instruction of undergraduates to make them competent to handle those infrequent obstetric emergencies which contribute so materially to the scattered maternal deaths and maintain the national mortality rate incident to child-bearing. The more effective utilization of the trained and experienced obstetric specialists would seem logical but inevitably involves certain changes in medical thought which time alone can effect.

University Hospitals.

HEALTH OF THE MIGRANT

WALTER M. DICKIE, M.D.
Director, California State Department of Public Health
SACRAMENTO, CALIF.

During the past few years there has been a mass interstate migration of individuals seeking manual labor, the most extensive and persistent migration of the white population that has occurred within the United States in modern times. Beginning in 1929, immediately following the economic crash that precipitated the era of depression, this flow of underprivileged migratory laborers from the Middle West to California has continued without interruption. It flared explosively following the drought years of 1933 to 1935 and assumed truly enormous proportions during the years 1936 and 1937. By no means has it stopped. Every month brings thousands of these migrants, most of whom travel by automobile, across the border lines of California.

In the last six months of 1935 no less than 57,017 migratory laborers entered the state, 90 per cent of whom were white. In 1936 they came in even greater numbers, and in 1937, according to the official records of the United States Farm Placement Service, 104,796 individuals seeking manual employment arrived at border checking stations, by automobile. Of these, more than 78,000 were from the nineteen drought states of the central and southern Middle West. In that year 59,077, or 57.4 per cent of the total number, came from six states, Oklahoma, Texas, Missouri, Kansas, Arkansas and Arizona. From Oklahoma alone came 21,709 of these people and from Texas there came no less than 8,723. It is probable that many more entered by other means of transportation.

A total of 259,665 refugees was checked at border stations during the two and one-half years beginning at midyear of 1935, through 1936 and 1937, most of whom came from the drought states. The number coming from nineteen drought states in 1937 is shown in the accompanying table.

There are many causative factors in this mass movement of migrants from the Middle West, chief of which are:

1. Drought.
2. Floods.
3. Supplanting of manual labor by farm machinery.
4. Crop failures.
5. Low market prices of cotton.
6. Planting restrictions imposed by the federal government.

Since a large portion of these people were share croppers who cultivated small pieces of land and divided proceeds with land owners, they were not tied down to land ownership and, on the sudden appearance of an economic calamity, were free to make immediate departure from an unfavorable environment to search for a new source of income.

The common type of migrant that has entered California during the past two years is of native white stock, a young adult, married, with a family of several children who accompany him on his travels, all undernourished, of limited or no education, lean, brown, hardy and physically able to endure considerable hardship. In his native environment his diet, as well as that of his forebears, consisted chiefly of pork, cornmeal and potatoes with few green vegetables or fruits—little or no variety. For generations people on the isolated plains of this country have existed on such meager fare.

At the same time that unfavorable economic conditions arose in the Middle Western states, greatly increased acreages for the growing of cotton, vegetables and other products were developed in California. In fact, it is estimated that 30 per cent of the large cotton plantations of the United States are now located in California and that 60 per cent of the large-scale fruit and truck-garden ranches are in this state.

There is a definite need for seasonal agricultural labor in California, and the United States Department of Agriculture estimates that 200,000 laborers are needed to harvest the state's crops at the season's peak. The arrival of great numbers of migratory laborers does not coincide with the harvest period, however, and in spite of the fact that their services are needed urgently when crops have matured, between seasons they often constitute economic burdens on local communities. The supply and demand are not regulated for the benefit of either the growers or the harvest hands. This fact has resulted in unprecedented confusion and in physical suffering due to inadequate housing, floods and other conditions leading to physical discomfort and illness. The local communities and the state and federal agencies were totally unprepared for this explosive and unannounced invasion, but machinery was developed for providing relief, housing, food, medical and nursing care, services in child and maternal welfare, immunization against communicable diseases and other standard public health procedures.

To absorb into a commonwealth nearly 260,000 indigents within a space of thirty months, provide them

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 17, 1938.

with manual labor in season and out, feed those without funds, provide housing, medical care, nursing and general public health services would tax the resources and ingenuity of any government. Acting together, local, state and federal authorities have surmounted legal, financial and other obstacles and today, regardless of citizenship, legal residence, race or color, adequate provision is made for safeguarding the health of migrants and for providing health protection for local residents. Work is provided whenever and wherever possible, medical care and hospitalization are given, with doctors of medicine and hospitals receiving compensation for services rendered. Not all of these benefits came at once, but with the development of a definite plan a standard and workable program of action has become a reality.

With the influx of these hordes of people who establish camps along the back roads, on ditch banks and in deserted barnyards, living in tents, packing cases, shacks and tin can shelters it became apparent that a problem in public health and welfare had arrived. The

Migrants from the Drought States

Drought States	Single Men	Families	Totals
Arizona	1,045	9,568	10,613
Arkansas	660	6,572	7,232
Colorado	733	2,969	3,702
Idaho	497	1,515	2,012
Iowa	270	754	1,024
Kansas	688	3,796	4,484
Minnesota	233	475	708
Missouri	681	5,635	6,316
Montana	348	754	1,102
Nebraska	765	2,259	3,024
Nevada	308	615	923
New Mexico	263	2,417	2,680
North Dakota	171	663	834
Oklahoma	1,755	19,954	21,709
South Dakota	206	958	1,164
Texas	681	8,042	8,723
Utah	347	715	1,062
Wisconsin	110	251	361
Wyoming	153	506	659
Totals	9,914	68,418	78,332

California State Department of Public Health recognized this fact and local health officers became particularly aware of it, as did also growers of cotton, fruits and vegetables. A sincere attempt to provide suitable housing for these refugees was made by large numbers of landowners but their efforts were applicable to relatively few, because of the magnitude of the migration.

The California State Department of Public Health, in cooperation with the United States Public Health Service, for two years has carried on active field work in those rural areas of the state where migrants have located. Of first importance, it has been determined, is the provision of adequate food for these migratory families. By heritage they have become accustomed to a diet lacking both in quantity and in essential food elements. As a result, they brought with them in their migration the heritage of years of malnutrition and dietary habits which are not easily adaptable to the great variety of fruits and vegetables found in California. In a recent survey made by the Bureau of Child Hygiene, State Department of Public Health, in which was compared the physical defects in 1,000 migratory and 1,000 resident children in the same area, it was found that, with the exception of those diseases caused by malnutrition, such defects varied only slightly.

While very few cases of actual starvation have been found, the majority of the migratory children receive a diet low not only in calories but also in vitamins and protective minerals. This is due to two conditions: first, the economic status of the family is such that during the major portion of the year only the bare essentials can be provided, and, second, mothers are unused to preparing and using the large variety of vegetables and fruits which are obtainable in this state. To aid in remedying the second condition, nutritionists have been placed in the field to work with nurses and physicians of the state health department. They are holding classes and giving individual instructions to migratory mothers in the preparation and use of the foodstuffs readily obtainable. Also they are helping them plan for their families balanced dietaries that will come within their financial range. During the last six months, and especially during the flood periods of the past winter, the Department of Agriculture, through the Farm Security Administration, has provided food grants and excess commodities for distribution to these malnourished families. It is believed that through these aids the nutrition of the migrant has been much improved.

A motor truck equipped with x-ray apparatus, doctors and nurses is maintained by the state health department. Children of migrants are given tuberculin tests, and x-ray examinations are provided for reactors. Thousands of such children have been examined but, unexpectedly, the incidence of tuberculosis in children of migrants is found to be no greater than in children of local residents.

About three years ago the Resettlement Administration of the Department of Agriculture, later changed to the Farm Security Administration, began a camp building program to provide more adequate housing and sanitary facilities for these people. They are at present operating seven such camps in California. These provide wooden platforms on which to pitch tents, water supplies, facilities for garbage disposal and adequate sewerage systems. In some camps there are water-flushed toilets and shower baths, while in others pit privies of an acceptable type are used in place of water-flushed toilets. It was intended by the Farm Security Administration, at the beginning of its program, that these camps should not provide a permanent residence for all the migrants but should act rather as temporary accommodations for a small portion of the migratory population. It was intended that the gospel of adequate camp sanitation should be spread over as much of the population as possible. In line with this trend and with the help of local health departments a large number of the growers of the state have built new camps or reconditioned their existing camps to provide these facilities. In the central portion of the San Joaquin Valley large numbers of growers have not only equipped their camps for flush toilets, running water and garbage disposal facilities but have also built large numbers of one room houses for their employees. The trend has been to raise somewhat the standard of living of the migrant to accustom him to those sanitary accommodations that we regard as necessities.

The burden of hospital care and medical services soon became too great for any county to bear and such services were refused because of lack of legal residence. The Farm Security Administration and the California State Department of Public Health with the assistance

of the California Medical Association and the State Relief Administration organized, through funds provided by the federal government, the Agricultural Workers Health and Medical Association, a nonprofit corporation authorized under the laws of California, with three doctors of medicine serving on its board of directors. Through this association, patients who are cleared through field doctors and nurses under supervision of the state health department may be placed in private hospitals and receive private medical care at no cost to themselves. This plan is a distinct innovation and is the only one of its kind that is in operation within the United States. In the course of their regular field duties in public health service, such as provision of sanitation, communicable disease control and immunization, the doctors and nurses employed by the state or local health departments discover cases in which hospitalization and medical care are needed. Such patients have not acquired legal residence and are not eligible to admission to county hospitals. They are referred to the Agricultural Workers Health and Medical Association, which provides a list of private physicians whose services are available. From this list a practitioner of medicine is selected by the patient and, if necessary, a hospital of choice may be entered. Both hospital and physician are paid by the association, their fees being based on definite schedules approved by medical and hospital associations.

By this plan it is hoped that no migratory worker who is sick need go without medical care and, if needed, he may be provided with hospital and nursing services, without expense to himself. In this manner, local communities are relieved of an unfair financial burden and private physicians and hospitals are compensated for the essential services rendered by them.

There are no laws, federal or state, that would prevent the migration of any legal resident of any state into another commonwealth. California has received this army of migrants and has provided for its health and welfare to the maximum of its ability. It expects the states of the Middle West to care for their own underprivileged citizens so far as possible and accepts the overflow with a feeling of responsibility. With federal assistance and with the cooperation of medical, welfare, education, relief and public health workers this gigantic task in the provision of aid for an army of the country's migratory workers can be completed and maintained. It means the amalgamation of a new type of citizen into the social structure of California and the development of a new consciousness of public responsibility in the solution of a national problem.

SUMMARY

1. In 1936 and 1937, approximately 100,000 individuals seeking manual labor entered California by automobile each year, nearly 260,000 having arrived in two and one-half years.

2. More than 57 per cent of these migratory laborers came from the Southern Middle Western states of Oklahoma, Texas, Arkansas, Missouri, Kansas and Arizona.

3. California, in cooperation with federal agencies, has controlled communicable diseases among these groups, no major epidemics having occurred.

4. Services included child and maternal hygiene, diagnosis of tuberculosis, public health nursing, education in nutrition, including selection and preparation of proper foods, provision of housing facilities and general public health services.

5. Study of conditions among these laborers revealed their greatest need—that of education in the hygiene of proper living.

6. The amalgamation of this army of underprivileged people into the social life of California requires the coordinated efforts of social welfare, relief, medical, nursing, public health and administrative workers among local, state and federal agencies.

7. In public health administration there are no state border lines so far as migration is concerned and no direct effort can be made forcibly to bar entrance of migrants into California.

8. In administering public activities to control these migrant groups, full recognition, first of all, was given to their status as human beings and, with public health as a driving force, provision was made not for prevention of disease alone but for medical and nursing care, relief and housing facilities.

313 State Building.

ABSTRACT OF DISCUSSION

DR. MYRNIE A. GIFFORD, Bakersfield, Calif.: The health problems of the migrant are largely those resulting from an inability to earn sufficient income to pay for adequate housing, food and sanitation. The feeling of insecurity resulting from the unsteadiness of available work in agricultural crops causes many functional body complaints, which are in reality the body's reactions to the fear under which many of the workers live. The Special Senate Committee to Investigate Unemployment and Relief found that the average earnings of the agricultural worker families in eleven representative counties was $265 a year and that they were not indigents, because less than 2 per cent of their average incomes came from relief. The cost of a minimum adequate food supply for a family of five at $6 a week for fifty-two weeks amounts to $312 a year. This provides a meager amount of food. The minimum estimated cost to these families for traveling in getting from one job to another is $125 for gas and oil. One wonders how they manage as well as they do. These figures explain why they live below the general subsistence living standard. Four times the number of agricultural workers are needed in harvesting seasons in California as are needed during the slack periods. Apparently there was not more tuberculosis, syphilis or other communicable disease among the migrant workers and their families than in the resident population of Kern County in 1937. There has been a significant relationship between the increase in the cotton industry in Kern County and the increase in the migrant population as well as the increase in the infant mortality in Kern County and admissions to the Kern General Hospital Service.

DR. A. T. MCCORMACK, Louisville, Ky.: I have never heard a report which showed more effectively the usefulness of modern science in the development and preservation of modern civilization. The report raises a challenge to every one of us. Why did these migrant workers come to California undernourished? They were undernourished back home. Exactly the same problems surrounded them in the cabins they left as surround them now in the camps at which they have arrived. We did nothing about it there and I am wondering why. The situation, it seems to me, constitutes a challenge to the rest of us to do something about this class of people. We have them in my state and you have them in yours. The only difference between Dr. Dickie's case and ours is that Dr. Dickie knows the situation.

DR. MARY C. BALDWIN, Riverside, Calif.: I represent a slightly different element in this discussion from the majority of this section. I represent the private practitioners, and I was recently appointed to the county board of public welfare

in Riverside County. In a recent tour that we made of the county to look into welfare situations, we had the pleasure of visiting one of the federal camps that Dr. Dickie has described. The nurse on the job told us of the conditions there with some 800 inhabitants in the camp on the day we visited it. It was immaculately clean. It was an interesting experiment in giving these people, for the first time in their lives, probably, a chance to have a bath under a shower. The nurse was doing a tremendous piece of health education work. She had literature in a little waiting room on all the subjects we want people to know about: syphilis, maternal health, all that sort of thing, and she said the publications were being avidly read. Dr. Gifford's point about their apprehension is well taken. There they have houses that are kept clean and an electric washing machine to every forty families. I have just one plea to leave with you from the standpoint of a private practitioner. We see these people in our offices as private patients. We wish more could be done for them. We wish that more active communication could be established between your group and our group. We could do a lot to help you and you could do a lot to help us, and we are anxious to be of every help that is possible. I think Riverside County is the front door for these migrants; most of them come in through Blythe. I wish we might have a more active feeling of leadership from your group. Our group is really very willing to help.

DR. PETER COHEN, Santa Maria, Calif.: All of us doing any kind of public health work have come in contact with this problem in California. In the northern end of Santa Barbara County there is a large acreage of peas, and in the early spring months we are invaded by a horde of people to pick peas. This past season was an unfortunate one, at least at the beginning, for the pea crop. As the result of weather conditions, the peas were not quite ready for picking when the migrant workers came in and we had several hundred on our hands for some time before work was available. These people were in our county during March and April, and during that time a number of persons from this group were admitted to the local county hospital in the northern end of the county. During those two months 20 per cent of the admissions were from this migratory group and that included cases of smallpox, typhoid and some of the other communicable diseases as well as fractures. Incidentally there were two cases of smallpox, which were the first cases that we have had in Santa Barbara County for many years. In connection with the tuberculosis mobile unit, we had occasion to make use of those facilities too. Eighty-seven persons in the camps were examined by the mobile unit and four active cases of tuberculosis were found, which I think is much higher than has been found in other camps. There was one incipient case, one moderately advanced, and two far advanced. It is gratifying to know that this state has taken such a forward step in taking care of these people, who are attempting to better their lot, and I think California has certainly shown the way.

DR. W. M. DICKIE, Berkeley, Calif.: I should like to impress on everybody that practically all these people are old American stock and to a large extent they are replacing our foreign laborers. Another thing, in our work we have done 83,000 typhoid vaccinations and have vaccinated thousands of these people for smallpox. We intend, as long as they are moving around the state, that we shall continue our immunization program not only for their protection but for the protection of the people of the state as a whole.

Sanitation in Rome in the Second Century.—Lanciani gives us a vivid picture of the sanitation of Rome in the second century, when the city had 800,000 inhabitants. The drinking water was contaminated, the sewers were clogged, and the burial of the poor was in great public pits along with the refuse and garbage of the inhabitants. He calculated that one pit, uncovered after two thousand years, must have contained 6,400 bodies, the odor from which was "still a horrible stench."—Hurd-Mead, Kate Campbell: A History of Women in Medicine, Haddam, Conn., the Haddam Press, 1938.

AN EXPERIMENTAL STUDY OF THE BEHAVIOR OF SULFANILAMIDE

FRED L. ADAIR, M.D.
H. CLOSE HESSELTINE, M.D.
AND
LUCILE R. HAC, PH.D.
CHICAGO

The obstetrician and gynecologist is rarely confronted with more serious infections than those caused by the gonococcus and the hemolytic streptococcus. Since its introduction in 1935, sulfanilamide [1] has been used in the treatment of these infections, but not always with favorable results and sometimes with untoward consequences. In sepsis due to the hemolytic streptococcus, the death rate is so high that drastic though hazardous therapy is sometimes justifiable. Gonococcic infection, although frequently associated with serious or incapacitating complications, rarely causes death; so until further studies have been made, routine use of this therapy which may produce dangerous reactions is unwarranted.

Some time ago this investigation was undertaken in order to determine the efficacy of sulfanilamide therapy on gonorrhea of the female. The treatment of gynecologic and obstetric patients presented certain problems not previously encountered in the administration of the drug, namely:

1. The elimination of the drug in certain body fluids: cervical secretion, menstrual fluid, and human milk.
2. Its transmission to and its effect on the unborn fetus.

TABLE 1.—*Time Required for Smears and Cultures to Become Negative*

Patients	Number of Days Required for: Negative Smears	Number of Days Required for: Negative Cultures	Difference in Days for Any One
1-10	0*-35	8-35	0-8
11	14	50	36
12	5	56	51

* Positive smear was never obtained.

This paper is a preliminary report of some of the observations made in the study of these problems.

The treatment of gonorrhea with sulfanilamide has been carefully controlled by detailed studies of the blood changes, blood level of the drug, and its urinary excretion. The criterion of cure has been based on the absence of the gonococcus in both culture and smear. Only twelve patients have been studied in this detail. Conclusions, of course, cannot be drawn from such a small number, but cultural methods for determination of cure seem to have positive advantages.

Table 1 shows the number of days required after the institution of sulfanilamide therapy before both smears and cultures became negative. In no case were the smears positive after the cultures had become negative.

This work has been done under a grant from the Albert B. Kuppenheimer Foundation.

From the Department of Obstetrics and Gynecology, the University of Chicago, and the Chicago Lying-In Hospital.

Read before the Section on Obstetrics and Gynecology at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 17, 1938.

1. Domagk, G.: Ein Beitrag zur Chemotherapie der bakteriellen Infektionen, Deutsche med. Wchnschr. **61**: 250 (Feb. 15) 1935. Tréfouël, J.; Tréfouël, J. (Mme.); Nitti, F., and Bovet, D.: Activité du p-aminophénylsulfamide sur les infections streptococciques expérimentales de la souris et du lapin, Compt. rend. Soc. de biol. **120**: 756, 1935.

Usually the smears were negative before the cultures, though generally the variation was not greater than eight days. Patients 11 and 12, however, showed a difference of thirty-six and fifty-one days respectively. Without cultures, the clinical appearance and smears in these two cases might have led to premature conclusions relative to cure. The advantage of cultures has not been overestimated and they should be employed whenever possible.

It has been fairly well established that sulfanilamide is evenly distributed throughout the body.[2] Its presence in cervical secretion might be assumed and could explain its curative value in gonorrhea. Cervical secretion was collected in vaginal diaphragms and by pipets and analyzed for the presence of the drug. It was found in the secretion, but in such small percentages that its bacteriostatic or bactericidal action could be questioned.

The drug was found in menstrual blood in appreciably greater proportion than in the cervical secretions.

It is of considerable importance to know whether nursing mothers excrete sulfanilamide in their milk. Studies of methods for the determination of the amount of sulfanilamide in the milk of lactating women were begun some time ago. While this work was in progress, Bauer and Gunderson [3] reported the effect of sulfanilamide on streptococcic mastitis in cows and stated that the amount of drug excreted in the cow's milk could be determined by a modification of Fuller's method for blood. Hepburn, Paxon and Rogers [4] found sulfanilamide in the milk of sixteen puerperal women. The concentrations varied from 0.55 to 2.17 mg. per hundred cubic centimeters twenty-four hours after its initial administration. No procedure for analysis was given.

We have used a modification of Marshall's [5] method for blood. In brief, the method was as follows: To 5 cc. of milk in a centrifuge tube was added 2.5 cc. of a 20 per cent solution of *p*-toluenesulfonic acid. The solutions were mixed, allowed to stand overnight at room temperature and then centrifuged. If the cream rose to

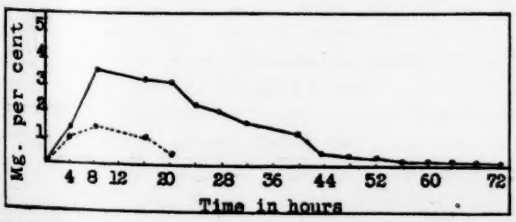


Chart 1.—Comparison of milk and blood levels: Two Gm. (30 grains) of sulfanilamide administered in two doses four hours apart. Solid line, milk; broken line, blood.

the top, it was necessary to follow centrifugation by filtration. Occasionally at this point there was a slight turbidity which made accurate colorimetric determinations impossible. This turbidity could usually be cleared by a drop or two of acid.

Three cc. of the clear supernatant liquid or of the filtrate was pipetted into a flask and diluted with 8 cc. of distilled water, i. e. a 1:5 dilution of milk. The p_H of this solution was about 1.0, which seems to be the optimal acidity for the coupling reaction. To the solution was added 1 cc. of a 0.1 per cent solution of sodium nitrite. After three minutes, 5 cc. of a solution of dimethyl *a* naphthylamine (1 cc. in 250 cc. of 95 per cent ethyl alcohol) was added, and the color was compared with a suitable standard. Ordinary breast milk to which definite concentrations of sulfanilamide have been added can be treated in the manner just described and used as a standard. Ten cc. of a standard aqueous solution to which 1 cc. of *p*-toluenesulfonic acid has been added may also serve as a colorimetric standard, but the solution which has contained milk tends to give a more exact color match.

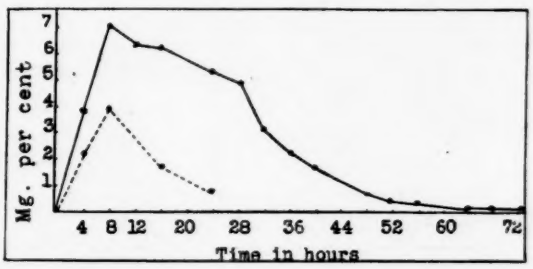


Chart 2.—Comparison of milk and blood levels: Four Gm. (60 grains) of sulfanilamide administered in two doses four hours apart. Solid line milk; broken line, blood.

Perhaps it should be mentioned again that this diazotization and coupling reaction is a general reaction characteristic of all aromatic amines and not a specific one for sulfanilamide. For that reason, controls were run on samples of milk obtained from each patient just before the drug was given. No false positive reactions were observed.

The patients were in the fourth to the tenth postpartum day and received orally a total of 2 or 4 Gm. (30 or 60 grains) of sulfanilamide in two equal four hourly doses. Alternate breasts were emptied by an electric breast pump at intervals of four hours. Whenever possible, blood was taken just before the breasts were pumped; the milk and blood levels were compared and the total amount of drug excreted in the urine was determined. The accompanying graphs show the results obtained with two typical patients who received 2 and 4 Gm. doses, respectively.

Two groups of ten patients each received 2 and 4 Gm. doses, respectively, of sulfanilamide. Tables 2 and 3 show the amounts of drug excreted daily for the three days following the administration of the drug.

Sulfanilamide was excreted in the milk as in the urine, partly unchanged and partly as the conjugated acetyl form. This may be of some importance since it has been shown that in animals the toxicity of acetyl sulfanilamide is somewhat greater than that of the free sulfanilamide.[6]

Of the ten patients who received 2 Gm. doses, the total amount of drug excreted in the milk varied from 3.76 to 13.67 mg.; of those who received 4 Gm. doses, the variation was from 11.77 to 54.00 mg. In terms of milligrams per cubic centimeter the variation was from 0.006 to 0.016 and from 0.019 to 0.040 mg. per cubic centimeter respectively. The amount of drug excreted does not seem to be related to the total milk volume.

2. Marshall, E. K., Jr.; Emerson, Kendall, Jr., and Cutting, W. C.: The Renal Excretion of Sulfanilamide, J. Pharmacol. & Exper. Therap. **61**: 191 (Oct.) 1937.

3. Bauer, Henry, and Gunderson, M. F.: The Effect of Sulfanilamide upon the Streptococci in the Udder of Mastitis Cows and a Method for Its Estimation in Milk, J. Bact. **35**: 66 (Jan.) 1938.

4. Hepburn, J. S.; Paxon, N. F., and Rogers, A. N.: Secretion of Ingested Sulfanilamide in Human Milk and in the Urine of the Infant, Sc. Proc. Am. Soc. Biol. Chem. **32**: liv (April) 1938.

5. Marshall, E. K., Jr.: Determination of Sulfanilamide in Blood and Urine, J. Biol. Chem. **122**: 263 (Dec.) 1937. Marshall, E. K., Jr.; Emerson, Kendall, Jr., and Cutting, W. C.: Para-Aminobenzenesulfonamide, J. A. M. A. **108**: 953 (March 20) 1937.

6. Marshall, E. K., Jr.; Emerson, Kendall, Jr., and Cutting, W. C.: The Toxicity of Sulfanilamide, J. A. M. A. **110**: 252 (Jan. 22) 1938.

Some patients, whose urinary excretion of sulfanilamide was poor, eliminated proportionately larger amounts of the drug in the milk.

The milk levels were higher than the blood levels from the time the first specimens were collected, four hours after initial medication, and sulfanilamide continued to be excreted in the milk even after the blood levels had become negligible. In the patients who received 4 Gm. of drug, the blood level dropped at the end of twenty-four hours to about 1 mg. per hundred cubic centimeters, while the milk level was still from 4.2 to 8.8 mg. per hundred cubic centimeters. It was still above 1.0 at the end of forty hours and in some cases it was as high as 1.4 mg. per hundred cubic centimeters even after sixty hours.

TABLE 2.—*Free Sulfanilamide Excreted Daily in Milk*
Dose 2 Gm. (30 Grains)

Patient	Free Sulfanilamide, Mg.				Total Cc. of Milk
	1st Day	2d Day	3d Day	Total	
1	6.28	3.81	0.56	10.65	688
2	7.94	5.32	0.41	13.67	946
3	5.34	2.03	0.54	7.91	483
4	1.50	1.42	0.84	3.76	412
5	5.67	3.15	0.80	9.62	1,594
6	5.20	4.40	0.51	10.11	434
7	5.90	2.38	0.55	8.83	456
8	2.07	2.04	0.23	4.34	1,044
9	5.85	3.91	0.74	10.50	527
10	6.12	4.65	0.57	11.34	495
Range	1.50 to 7.94	1.42 to 5.32	0.23 to 0.84	3.76 to 13.67	
Mean	5.18	3.31	0.57	9.07	

The appreciable differences in blood and milk levels during the first forty-eight hours require some explanation, even though these differences may not be so great as the graphs might lead one to believe. The milk and blood specimens were collected at the same time, but it must not be assumed that the time relationship of the levels is absolute. The blood level is momentary, while the milk level represents a cumulation level of the normal and abnormal constituents excreted during the previous four hours. The continued excretion of the drug in the milk after the blood levels were negligibly low seems to indicate that there is some concentration of the drug in the mammary glands. We have no proof to offer but suggest that the materials taken from the blood stream circulating through the breast to form milk may have an affinity for sulfanilamide. These substances accumulate in the breast and are ultimately excreted in the milk rather slowly, so that there is a period of retention.

From 60 to 75 per cent of the sulfanilamide can be accounted for in the urine, where it seems to be excreted more rapidly than in the milk. Little or no drug was found in the urine after forty-eight hours.

The largest amount of drug excreted in the milk was only 1.5 per cent of that administered. With a double dose of drug, considerably more than a double amount was excreted in the milk. Whether or not prolonged use would result in an accumulation of the drug in the milk cannot be answered at this time.

Hoffman, Schneider, Blatt, Herrold and others [7] have shown that young children tolerate the drug quite well. The tolerance of the newborn is unknown; therefore it would seem safer to discontinue breast feeding during the period of the presence of sulfanilamide in the milk.

The rabbit was the animal chosen for the study of the effect of sulfanilamide [8] on the fetus. Pregnant rabbits tolerate handling better than rats or mice, and their period of gestation is relatively short. In the rabbit, as in man, the drug is partly acetylated in the body and excreted in the conjugated acetyl, as well as the unchanged form. In the dog, acetylation does not seem to take place.[2]

The toxicity of single doses of sulfanilamide has been fairly well determined for the rabbit. Raiziss, Severac and Moetsch [9] showed that 94 per cent of their rabbits tolerated oral administration of 1.5 Gm. per kilogram; 50 per cent tolerated 2 Gm. per kilogram. Halpern and Mayer [10] stated that the toxic dose for rabbits was 2 Gm. per kilogram. Almost no work has been done on the toxicity of the drug when it is administered over a prolonged period. Marshall, Cutting and Emerson [6] reported that deaths occurred in two rabbits that had received 3.5 Gm. per kilogram of sulfanilamide within two days, but no ill effects were observed in two rabbits which had received 4 Gm. per kilogram within four days.

It seemed best in a study of this type to determine first the effect during pregnancy of large but sublethal doses of the drug and then to decrease the dosage in subsequent groups as necessary. The first group of twenty animals received 0.5 Gm. per kilogram, an amount, of course, proportionately very large in comparison with the dose administered to man but one which was believed to be well within the toxic limits for the rabbit, since a group of five nonpregnant rabbits received the dosage with little effect other than a slight loss of appetite. The second group of twenty and a third group now being studied received 0.25 Gm. and 0.10 Gm. per kilogram, respectively.

Rabbits were obtained from reliable rabbitries, in groups of four, all bred on the same day. They varied in size from 2.5 to 6.5 Kg., but most of them were between 4 and 5 Kg. Two, and later one, of each group of four were used as controls. The controls, eleven in all, were handled and manipulated in exactly the same manner as the test rabbits, but they received no drug.

TABLE 3.—*Free Sulfanilamide Excreted Daily in Milk*
Dose 4 Gm. (60 Grains)

Patient	Free Sulfanilamide, Mg.				Total Cc. of Milk
	1st Day	2d Day	3d Day	Total	
1	23.45	16.44	5.60	45.49	1,146
2	32.50	18.47	3.03	54.00	1,415
3	21.88	10.33	0.71	32.92	937
4	11.61	9.19	1.27	22.07	1,148
5	7.98	4.14	0.63	11.77	1,065
6	20.15	9.87	1.24	31.26	587
7	31.08	15.56	4.23	50.87	491
8	12.52	10.08	1.19	23.89	537
9	22.57	15.89	5.67	44.13	1,060
10	8.81	7.95	0.57	17.33	418
Range	7.98 to 32.50	4.14 to 18.47	0.57 to 5.60	11.77 to 54.00	
Mean	19.25	11.79	2.41	33.37	

At first the sulfanilamide was fed in tablets or in acacia suspension, but later gelatin capsules were used exclusively. The rabbit was held by the back of the neck and hind legs in a half sitting position, and the capsules, which had been moistened in water, were placed in the pharynx. No mouth gag of any kind

7. Hoffman, S. J.; Schneider, Maurice; Blatt, M. L., and Herrold, R. D.: Sulfanilamide in the Treatment of Gonorrheal Vulvovaginitis, J. A. M. A. **110**: 1541 (May 7) 1938. Symposium on Sulfanilamide Therapy, J. Pediat. **11**: 156 (Aug.) 1937.

8. The crystalline prontylin used in this investigation was supplied through the courtesy of the Department of Medical Research, Winthrop Chemical Company, Inc.

9. Raiziss, G. W.; Severac, Marie, and Moetsch, J. C.: Chemotherapeutic Studies of Sulfanilamide, J. Chemotherapy **14**: 1 (April) 1937.

10. Halpern, B. N., and Mayer, R. L.: De quelques substances antistreptococciques, Presse méd. **45**: 747 (May 19) 1937.

was used; thus struggling and handling were reduced to a minimum. Medication, once a day, was begun on the twenty-third day of pregnancy, i. e., eight days before the due date, and was continued until the young were born.

During the experiments there were seven deaths (11 per cent) among the test rabbits and one (7 per cent) in the controls. Of the test rabbits three died before delivery, two during delivery and two on the third day after delivery. Three of the deaths were due to causes not attributable to the drug; the other four may or may not have been due to individual susceptibility. The organs of the animals that died after delivery contained no sulfanilamide.

Fifty per cent of the controls lost from 200 to 600 Gm. each in weight. Of those that received 0.5 Gm. per kilogram, 86 per cent lost from 200 to 600 Gm. each. Most of these animals appeared somewhat toxic and lost appetite. Some of the rabbits received a small amount of a solution of sodium bicarbonate after their capsules, but with no apparent beneficial results.

One of the young from each litter was killed as soon after birth as possible. Portions of the liver, lungs, kidney and brain were examined for pathologic changes, and the rest analyzed for sulfanilamide content. The drug was found in the blood, urine and organs of all the

TABLE 4.—*Effect of Sulfanilamide on the Unborn Rabbit Fetus*

	Does		Young			
Dosage	Total	Comment	Total Born	No. of Deaths*	Per Cent Deaths	
Controls (no drug).....	10	On time	73	16	21.9	
0.5 Gm. per kilogram.....	20	12 on time	79	46	58.2	63.1
		8 early	62	43	69.3	
0.25 Gm. per kilogram....	20	16 on time	140	44	31.4	35.2
		4 early	22	15	69.0	

* Fetal and neonatal deaths, but not those killed for the experiment.

stillborn and killed young from test animals. There were no false positive reactions in the young from controls.

In one case the drug was fed for eight days and then discontinued. The rabbit kindled three days later. No drug was found in the blood or urine of the young that were killed, but it was present in the liver.

After the third day the size of the large litters was decreased to seven; the young above that number were killed or, if possible, transferred to other does. Whenever transfers were made from control rabbits to test rabbits, the growth of the young fed by the test rabbit was much slower than that of those fed by the control. The does and young were observed for eight days and then returned to the rabbitries.

In table 4 the mortality of the young born of test and control animals is compared.

When sulfanilamide in amounts well within the tolerance dose was fed to pregnant rabbits, the drug was transmitted to the circulatory system of the fetus and was associated with a marked increase in the mortality of the young. When the dose was decreased from 0.5 Gm. per kilogram to 0.25 Gm. per kilogram, the effect of the drug was still evident but it was not nearly so pronounced. In addition to the increased mortality, the drug seemed to alter the time of delivery. Forty per cent of the animals that received 0.5 Gm. per kilogram of the drug kindled from three to five days before their due date.

All the rabbits listed in table 4 were housed in individual large cages, which were provided with nest boxes. At the beginning of this work, however, the experiments were carried out with rabbits (twenty-two in all) housed in ordinary small rabbit cages. In this series, in which conditions were less favorable for growth, not a single young born of fifteen test rabbits survived; twelve, or 23 per cent, of the fifty-one young born of seven control rabbits did survive. It would seem, therefore, that sulfanilamide diminishes the chances of survival of the young, and particularly so if conditions are unfavorable.

Although the rabbit excretes the drug in the same form as man, one cannot be certain that its absorption and utilization are the same. We have, however, established the fact that the drug is transmitted to the human fetus. Three patients received 1 Gm. each of sulfanilamide from three to six hours before delivery. The drug was found in the placenta and cord blood in all three cases.

CONCLUSIONS

1. Sulfanilamide has been found in the cervical secretion and menstrual fluid, but in amounts so small that its bactericidal action on the gonococcus is questionable.

The criterion of cure of gonorrhea should be based, if possible, on cultural studies as well as smears.

2. Sulfanilamide is excreted in breast milk, both free and as the acetyl derivative. The milk level is considerably above the blood level, and the drug is excreted in the milk for some time after the blood level is negligibly low. With doses of 2 and 4 Gm. (30 and 60 grains) the total amount excreted was never greater than 1.5 per cent of the amount of the drug administered. It was still being excreted in small amounts seventy-two hours after medication had been discontinued.

3. Sulfanilamide is transmitted to the placenta and fetus of the rabbit and is associated with a marked increase in the mortality of the young. Sulfanilamide has also been found in the placenta and cord blood of the human being.

4. Until more is known of the tolerance of the human fetus and of the newborn for sulfanilamide, the drug should be administered only with the utmost caution during pregnancy and the period of lactation. If administered to the mother, breast feeding should be discontinued during the period that sulfanilamide is excreted in the milk.

ABSTRACT OF DISCUSSION

DR. HERBERT O. CALVERY, Washington, D. C.: Sulfanilamide is partially acetylated in man and most other animals, the dog being the exception so far as is known. In their summary the authors discussed a question as to whether or not the toxicity referred to might be due to the acetyl derivative; as a matter of fact, they did not answer that but did state that the acetyl derivative is always excreted in the milk. I wonder whether they found the acetyl derivative in vaginal secretions and whether or not the effect of sulfanilamide on the fetus was due to the toxicity of the acetyl derivative, which is more toxic than the free sulfanilamide, or whether they think that was due to the sulfanilamide itself. The authors pointed out that the administration of this substance to pregnant animals is hazardous and should be undertaken with caution. I cannot help raising the question concerning the high mortality among their controls which they probably have already partially answered by stating that they had trouble with caging. Because of the loss of weight and high mortality among the control

animals it seemed to me that some other factor might be operating as well as the sulfanilamide. Such experiments as these are highly commendable types of investigations. I think pharmacologists should be chided for the negligence they have shown in failure to investigate thoroughly the toxicity and pharmacology of a compound of such clinical significance as this one. Probably most physicians know that sulfanilamide was used in the clinic even before it was ever investigated on animals at all, and it is my feeling that this should not be the case. It is probably unfair to ask the authors to carry out pharmacologic experiments when they have many other things they would prefer to do, but I think they feel that the pharmacologic tests should by all means be made, and since this information was not available on this point, they have made it so.

DR. J. P. PRATT, Detroit: Recently Dr. H. L. Steward and I have been interested in the excretion of sulfanilamide in human milk. Twenty-eight cases have been studied for the concentration of the compound in blood and milk. Our method of administration differs slightly from the authors' but the results obtained are comparable. They divided the total administration into two doses for one day, while we gave the same total daily amount of 30 or 60 grains (2 or 4 Gm.) in 5 or 10 grain (0.3 or 0.65 Gm.) doses every four hours day and night at nursing time. Milk was taken with the breast pump immediately before the feeding, the accumulated excretion thus being sampled during each four hours. Ten patients received 30 grains (2 Gm.) daily, while eighteen received 60 grains (4 Gm.). They gave sulfanilamide only one day but followed the excretion for several days. We gave the drug daily for seven days and followed the excretion. Allowing for the differences in administration, our results are nearly parallel. We do not share the authors' conclusion that "if administered to the mother, breast-feeding should be discontinued during the period that sulfanilamide is excreted in the milk." They show that the highest total excretion in the first day is only 32.5 mg., or about one-half grain. While there is no established dose for newborn babies, Long and Bliss (*Ann. Int. Med.* **11**:575 [Oct.] 1937) state that they should receive a total of 1,000 mg., or 15 grains, for 10 pounds of body weight during the first twenty-four hours. By the administration of 60 grains to the mother, the authors' figures indicate that a nursing baby would receive only one thirtieth of the dose suggested by Long and Bliss. A full dose for the baby would therefore call for thirty times 32.5 mg., the highest daily excretion in milk reported by Dr. Adair and his co-workers, or 975 mg. To attain such a level is not practical. We have found that, among the twenty-eight nursing babies whose mothers were receiving sulfanilamide, not one showed any clinical signs of toxicity. In the blood of eight babies we found only traces which were too small to measure. The total twenty-four hour urine from six of the eight babies showed only from 1 to 3 mg. per hundred cubic centimeters. The authors have drawn conclusions by inference from animals which do not seem to be in accord with the clinical data. There is no apparent danger of toxicity to a baby nursing from a mother receiving therapeutic doses. Conversely, it is not an adequate therapeutic means of administering sulfanilamide to the nursing baby.

DR. E. D. PLASS, Iowa City: It is not the function of the Chair to discuss, but I would like to ask the authors how they explain the fact that the mammary gland excretion of sulfanilamide continues after the sulfanilamide has disappeared, apparently, from the blood stream.

DR. H. CLOSE HESSELTINE, Chicago: In choosing the amount for the rabbits we tried to take what we thought might be a maximum sublethal dose. We had to guess at that because there was not much information available for dosage continued over a period of days in these animals. We first started with 0.5 mg. per kilogram daily, beginning eight days before the expectant date of delivery. Then to evaluate smaller doses, the amount was changed to 0.25 mg. per kilogram and later to an even lower dosage. Dr. Calvery's question regarding the deaths of the bunnies in the controlled series is appreciated. When larger cages were used the rate decreased appreciably, while those from mothers receiving the drug did not change so much. The controlled series received no drug but had identical handling and were given acacia, capsules, or tablets without the drug. For the present we disagree with Dr. Pratt as to the safety of nursing, as we do not know how much of the drug will appear in the milk over a period of days with full dosage. In the future, evaluations will be made on the blood levels and milk excretion after three or four days' therapy and then it may be seen whether it is still higher than after one or two doses. This reason alone makes us skeptical. As to the question from the Chair, we do not yet know why sulfanilamide is excreted in the milk for hours after it had appreciably or practically disappeared from the blood. Controlled analyses have repeatedly shown this fact and we believe that this will be easily confirmed by others. For the present we might assume that the breast tissue is capable of picking up the drug, holding it, and then excreting it over a period of hours or perhaps days.

THERAPEUTIC EFFECTIVENESS AND TOXICITY OF SULFANILAMIDE

AND SEVERAL RELATED COMPOUNDS: FURTHER CLINICAL OBSERVATIONS

EDWARD G. BANNICK, M.D.
SEATTLE
ALEX E. BROWN, M.D.
ROCHESTER, MINN.
AND
FRANK P. FOSTER, M.D.
MONTCLAIR, N. J.

In a previous paper we [1] expressed our belief in the efficacy of sulfanilamide in the treatment of infections due to hemolytic streptococci, meningococci, gonococci and organisms causative of infections of the urinary tract with the exception of Streptococcus faecalis.

Our present report deals briefly with our further experience with sulfanilamide and with our use of other sulfonamide preparations. It includes a review of oral administration of two allied preparations, di-methyl-di-sulfanilamide (di-septal, Uliron, DB90, D373) and neoprontosil (prontosil soluble). A preliminary review also is given of treatment of chronic ulcerative colitis with preparations of the type of those just named.

SULFANILAMIDE

Since our first report greater experience with sulfanilamide has enabled us to confirm our early impressions of its therapeutic value, limitations and dangers. With the passage of time we have strengthened our belief in the value of this drug in the treatment of infections mentioned in the opening paragraph. We have not had sufficient experience to allow us to form any definite opinion regarding its true worth in treatment of infections with pneumococci. Results obtained with specific serum, however, should make use of such serum the treatment of choice for infections with pneumococci, although experimental work [2] indicates the wisdom of the combination of specific serum and sulfanilamide in selected cases, and the use of sulfanilamide alone when serum therapy is not available or when the disease is of considerable duration.

From the Division of Medicine, the Mayo Clinic.
Read before the Section on Pharmacology and Therapeutics at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 17, 1938.

1. Brown, A. E.; Bannick, E. G., and Habein, H. C.: The Use of Sulfanilamide and Prontosil Solution, Minnesota Med. **20**: 691-697 (Nov.) 1937.

2. Branhan, Sara E.: Studies in Chemotherapy: V. Sulfanilamide, Serum and Combined Drug and Serum Therapy in Experimental Meningococcus and Pneumococcus Infections in Mice, Pub. Health Rep. **52**: 685-695 (May 28) 1937. Osgood, E. E.: Personal communication to the authors.

Our experience with sulfanilamide thus far has demonstrated a lack of satisfactory results in treating infections with Staphylococcus aureus, Staphylococcus albus and Streptococcus viridans. We have had varying results in treatment of several cases of undulant fever, and in one case of tularemia we noted no benefit from sulfanilamide. The results of our treatment of rheumatic fever have paralleled those reported by Swift [3] and have been unsatisfactory in general, just as have been those obtained in the treatment of infectious arthritis and fibrositis. The course of two cases of severe infectious mononucleosis appeared to be shortened when sulfanilamide was used.

Our experience has led us to feel that the optimal dosage of sulfanilamide is as yet unsettled. We believe that this depends chiefly on the type and severity of the infection. Long's [4] studies indicating the value of a concentration of the drug of 10 mg. per hundred cubic centimeters of blood have caused us to believe that this is a favorable concentration to obtain in fulminant cases. A concentration in the blood approaching this should be attained early and maintained until clinical improvement occurs or until symptoms of toxicity necessitate its reduction. Recently Long has advocated even higher concentrations in such cases. In the moderate and mild infections and in most patients with gonorrhea a concentration of sulfanilamide in the blood of from 5 to 7 mg. per hundred cubic centimeters seems to be adequate and this frequently can be obtained in adults with daily doses of from 4 to 5 Gm. In most infections of the urinary tract, daily doses of from 3 to 4 Gm. of sulfanilamide produce a concentration of sulfanilamide in the blood of from 3 to 4 mg. per hundred cubic centimeters, which seems to produce satisfactory results and the results seem to be definitely enhanced if the urine is alkaline. The recent experimental work of Osgood [5] tends to show the value of small doses of the drug and yet our clinical experience has seemed to indicate the value of comparatively large doses at least during the early part of the treatment. However, we have not had sufficient experience with small doses properly to evaluate their effect. Uniform intervals between doses within each twenty-four hours seem essential to maintain satisfactory concentration in the blood for the production of optimal results.

The toxic manifestations which appear in the course of treatment with sulfanilamide seem to occur on a basis of sensitivity and idiosyncrasy. The latter, while apparently rare, is serious and the former, while more common, is usually mild but may become serious if ignored. Most individuals seem to exhibit some sensitivity when the initial doses of the drug are large or when the total administered amount is considerable. The toxic manifestations which occur with such doses are usually mild and consist largely of malaise, anorexia, nausea, vertigo and tinnitus. With continued use of the drug, these symptoms may be followed by cyanosis attributable to methemoglobinemia, sulfhemoglobinemia or the presence of an unidentified substance in the blood; abdominal cramps, diarrhea, cutaneous lesions, fever, paresthesias and so on also may supervene. When these mild to moderate toxic symptoms occur we believe they should be considered seriously, for they may herald the advent of more serious complications such as leukopenia, granulocytopenia, anemia of acute type or associated with crisis, jaundice and a state resembling shock. Persistence and increase of these mild to moderate symptoms, in spite of decrease in dosage of the drug, constitute ample reasons for discontinuance of its administration, particularly if the preparation is used as a more or less optional measure. If after several days a further attempt is made to use the drug and these symptoms again arise and tend to persist, we believe that administration should be permanently discontinued and some other form of treatment used. We also believe that the blood offers an index of toxicity even more important than the symptoms and that decrease in the hemoglobin content or in the erythrocyte count or leukocyte count must be taken as evidence of a dangerous complication which necessitates immediate discontinuance of this form of therapy.

The likelihood of occurrence of the foregoing toxic manifestations is increased in the presence of existing marked anemia, leukopenia, and renal and hepatic damage. The presence of any of these conditions, therefore, constitutes a contraindication to the use of sulfanilamide. If, under certain circumstances, it seems advisable to use the drug in spite of the presence of contraindications, it must be given with caution. We have seen no fatalities from blood dyscrasia following use of this preparation. Jaundice following the use of sulfanilamide has been noted in two cases in which death occurred and in which it is possible that hepatic damage existed prior to the beginning of the treatment. We have felt, as a result of this experience, that sulfanilamide may cause hepatic damage which already exists to progress to a stage from which regeneration is impossible. In contrast to this complication are the mild attacks of jaundice which occasionally are seen and which usually subside rapidly when use of the drug is discontinued and intake of fluids is forced. These two measures are of extreme importance in combating toxemia from sulfanilamide and may be reinforced by the use of transfusions of blood or oral administration of bone marrow when disturbances in the blood occur.

Fortified by a knowledge of the nature of the toxic manifestations of sulfanilamide, we believe that constant observation of the patient under treatment will allow detection of these abnormal reactions when they are still amenable to appropriate measures and will prevent the occurrence of fatalities save in rare instances.

DI-METHYL-DI-SULFANILAMIDE

In view of available reports,[6] we felt that clinical work with di-methyl-di-sulfanilamide was justifiable. From September to December 1937, di-methyl-di-sulf-

3. Swift, H. F.; Moen, J. K., and Hirst, G. K.: The Action of Sulfanilamide in Rheumatic Fever, J. A. M. A. **110:** 426-434 (Feb. 5) 1938.

4. Long, P. H., and Bliss, Eleanor A.: Para-Amino-Benzene-Sulfonamide and Its Derivatives; Experimental and Clinical Observations on Their Use in the Treatment of Beta-Hemolytic Streptococcic Infection: A Preliminary Report, J. A. M. A. **108:** 32-37 (Jan. 2) 1937.

5. Osgood, E. E.: Culture of Human Marrow: Studies on the Mode of Action of Sulfanilamide, J. A. M. A. **110:** 349-356 (Jan. 29) 1938.

6. These include:
Domagk, Gerhard: Weitere Untersuchungen über die chemotherapeutische Wirkung sulfonamidhaltiger Verbindungen bei bakteriellen Infektionen, Klin. Wchnschr. **16:** 1412-1418 (Oct. 9) 1937.
Bauer, Hugo, and Rosenthal, S. M.: Studies in Chemotherapy: VII. Some New Sulfur Compounds Active Against Bacterial Infections, Pub. Health Rep. **53:** 40-49 (Jan. 14) 1938.
Gray, W. H.; Buttle, G. A. H., and Stephenson, Dora: Derivatives of *p*-Aminobenzenesulfonamide in the Treatment of Streptococcal Infection in Mice, Biochem. J. **31:** 724-729 (May) 1937.
Grütz, O.: Neue Grundlegung für die Gonorrhoebehandlung, München. med. Wchnschr. **2:** 1201-1205 (July 30) 1937.
Koch, Willy: Morbilliformes Exanthem nach Uliron, Dermat. Wchnschr. **106:** 103-105 (Jan. 22) 1938.
Killmer, G., and Nehrkorn, A.: Erfahrungen mit Uliron bei Staphylokokkeninfektionen, München. med. Wchnschr. **2:** 2021-2022 (Dec. 17) 1937.
Desiderius, Samu: Zur "Ulironfrage," Dermat. Wchnschr. **106:** 105-108 (Jan. 22) 1938.
Schubert, M.: Zur Chemotherapie der Gonorrhoe mit Uliron (DB 90) und Diseptal (DB 87), ibid. **105:** 1549-1553 (Dec. 4) 1937.
Schmidt, Gerhard: Weitere Erfahrungen mit Uliron, ibid. **106:** 55-58 (Jan. 8) 1938.

anilamide was used at the Mayo Clinic in treatment of approximately seventy patients. Of this group, thirty-two were seen by us in the general medical services and form the major basis of this report; the remaining thirty-eight were seen by our colleagues of the Section on Urology.

This series of thirty-two patients represented infections with anaerobic streptococci, hemolytic streptococci, Streptococcus viridans, Staphylococcus aureus, colon bacilli, Proteus vulgaris, gonococci, pneumococci and actinomyces. Although small, this series offers some basis for comparison with a similar group of patients whom we have treated with sulfanilamide and therapeutically the results seem similar. Although the coincidental use of other therapeutic agents, such as roentgen rays or radium, in treatment of certain of these infections has made accurate evaluation of individual therapeutic measures difficult, nevertheless we have felt, in view of past experience, that many of the favorable results would not have occurred so promptly without the use of di-methyl-di-sulfanilamide.

The usual daily dose of this drug was 4 Gm., although at times daily doses up to 7 Gm. were given and the drug was administered orally in five or six divided doses. The total amount of di-methyl-di-sulfanilamide given varied from 96 Gm. in twenty-five days in one case to 8 Gm. in from two to three days in three cases.

TABLE 1.—*Neoprontosil: Patients, Results, Toxicity*

	Number	Per Cent
1. Total patients*	93	
2. Total patients treated in this series	84	
3. Patients treated with both neoprontosil and sulfanilamide	15	17.8
4. Satisfactory results	60	72.0
5. Questionable results	6	7.0
6. Failure of treatment, patients	18	21.0
7. Deaths	4	4.7
8. Evidence of toxicity with neoprontosil, patients	13	15.4
9. Intolerant of sulfanilamide but satisfactory response with neoprontosil, patients	10	11.9
10. Intolerance to both neoprontosil and sulfanilamide, patients	1	1.1

* Includes nine cases of chronic ulcerative colitis.

The concentrations of di-methyl-di-sulfanilamide in the blood were estimated by the method of Marshall [7] for determining sulfanilamide but a standard of di-methyl-di-sulfanilamide was used instead of one of sulfanilamide. This was done because it was thought that di-methyl-di-sulfanilamide did not form sulfanilamide in the process of metabolism. Hence the reaction product with di-methyl-naphthamine could be approximated more closely by a standard of di-methyl-di-sulfanilamide than by one of sulfanilamide. The results disclosed a much lower concentration of di-methyl-di-sulfanilamide in the blood than the concentration of sulfanilamide obtained when similar amounts of that drug were given. Concentrations of di-methyl-di-sulfanilamide in the blood averaging 1.9 mg. per hundred cubic centimeters were obtained with an average daily dose of 4 Gm. as compared with concentrations of from 4 to 7 mg. per hundred cubic centimeters of sulfanilamide when a similar dose of the latter drug was given. Urinary concentrations of sulfanilamide had averaged from 60 to 125 mg. per hundred cubic centimeters for free sulfanilamide and from 50 to 125 mg. per hundred cubic centimeters for conjugated sulfanilamide when the daily dose was 4 Gm. When a similar daily dose of di-methyl-di-sulfanilamide was administered, urinary concentrations were 58 mg. per hundred cubic centimeters for free and 68 mg. per hundred cubic centimeters for conjugated di-methyl-di-sulfanilamide.

Of striking interest in this group of thirty-two cases in which di-methyl-di-sulfanilamide was given was the rarity of symptoms of toxicity. In passing it may be mentioned that lack of acute symptoms of toxicity was also noted in the thirty-eight cases seen by the urologists and not included as the basis of this report. Mild nausea and malaise occurred when three patients received a follow-up course of the drug in the treatment of an infection of the urinary tract. In one case of chronic ulcerative colitis during a secondary course of di-methyl-di-sulfanilamide, taken after the patient had left the clinic, there occurred fever, dermatitis and cyanosis, the last presumably due to methemoglobinemia. Also in one case of chronic osteomyelitis with septicemia, mild vertigo and tinnitus occurred.

In seven of the thirty-two cases the previous administration of sulfanilamide has been attended by various manifestations of toxicity which made further treatment with this drug inadvisable. In some instances as little as from 1 to 2 Gm. of sulfanilamide had repeatedly produced cyanosis (methemoglobinemia or sulfhemoglobinemia), malaise, emesis, dermatitis or high fever and yet the administration of di-methyl-di-sulfanilamide in therapeutic doses in these cases produced no clinical evidence of toxicity. In several instances, administration of di-methyl-di-sulfanilamide was begun while toxic effects of sulfanilamide were still present and in every such instance these toxic effects rapidly disappeared when administration of sulfanilamide was discontinued. Although there was evidence of clinical cyanosis in only one instance, nevertheless small amounts of methemoglobin could be detected spectroscopically in the blood of the majority of the patients who received 5 Gm. or more of di-methyl-di-sulfanilamide daily. In no instance was sulfhemoglobin detected in the blood.

Careful observation was made of the concentration of hemoglobin and careful erythrocyte and leukocyte counts were made, but no significant changes attributable to di-methyl-di-sulfanilamide were noted. Neither was there any decline in the carbon dioxide combining power of the plasma, such as has been noted with the use of sulfanilamide. Results of urinalysis also remained essentially negative.

Of the thirty-two cases, in twenty-two improvement was marked, in six no benefit resulted, in three improvement was temporary, and in one the result was questionable. Death of one patient who had actinomycosis and one who had subacute bacterial endocarditis did not seem attributable to the previous use of di-methyl-di-sulfanilamide. Inadequate amounts of di-methyl-di-sulfanilamide were administered to a patient who had Staphylococcus aureus septicemia and the course of the disease was unaltered.

In two cases the unusual complication of peripheral neuritis occurred. In each instance only the lower extremities were involved and the complication came on rather rapidly when large doses of di-methyl-di-sulfanilamide had been given for a period longer than fourteen days. However, in four other cases in which the drug had been given in comparable doses for similar periods this complication did not occur. In one instance

7. Marshall, E. K., Jr.; Emerson, Kendall, Jr., and Cutting, W. C.: Para-Aminobenzene-Sulfonamide: Absorption and Excretion: Method of Determination in Urine and Blood, J. A. M. A. **108**: 953-957 (March 20) 1937.

the peripheral neuritis was mild and largely disappeared within seven days, while in the other it was more marked and was accompanied by bilateral foot-drop. Improvement was slow in the latter case but recovery was well advanced after sixty days. In the meantime, other reports on the occurrence of peripheral neuritis, by Hofmann,[8] Tietze,[9] Hüllstrung[10] and Krause have appeared in the German literature and additional cases have occurred in this country. In some of these cases the upper extremities have been involved. In some instances recovery has remained questionable.

Although di-methyl-di-sulfanilamide has appeared in our experience to possess certain advantages over sulfanilamide largely from the standpoint of lessened toxicity, the fact that its use has been followed by peripheral neuritis has caused us to curtail its clinical application until such time as it may seem that this complication has been eliminated. Possibly supplementary use of vitamin B_1 will be of benefit in preventing peripheral neuritis.

Because of the limitation of clinical material at the time di-methyl-di-sulfanilamide was tried we were unable to come to any definite conclusions regarding its value in infections due to staphylococci and anaerobic streptococci. We also realize that the presentation of such a small series of cases does not permit entirely satisfactory conclusions concerning therapeutic efficiency in other infections but we do feel that this experience is of value and that further controlled clinical and experimental study with this drug is indicated.

NEOPRONTOSIL (PRONTOSIL SOLUBLE)

The toxicity of neoprontosil when used parenterally has been said by many workers[11] to be low, and data are available which have tended to support our belief that the drug when given orally might possess valuable therapeutic qualities.[12] Of particular importance in this regard are the experimental studies of Rosenthal[13] and of Raiziss.[14] The former has shown that the therapeutic effect of neoprontosil when given parenterally is probably considerably decreased because of the rapid elimination of from 85 to 95 per cent of the drug in the urine five hours after its administration. Raiziss[14] has shown that the protection afforded experimentally infected animals when neoprontosil is given orally approximates closely that obtained by the use of sulfanilamide; the protection afforded when neoprontosil is given parenterally is markedly less and at the end of twenty-eight days is less than one half of the protection given following oral administration.

Accordingly we undertook this clinical study. The drug[15] was supplied to us both in tablets of 5 grains (0.3 Gm.) and in capsules. The effect of the two seemed the same, but the capsules offered the advantage that they did not stain the mouth and fingers and their use did away with the objection that the tablets might be insoluble.

Evidence that the drug is quickly absorbed from the gastrointestinal tract is afforded by the rapidity with which the urine becomes colored and by the appreciable quantities of sulfanilamide which appear in the blood and urine of both normal and sick persons within twenty-four hours. The lack of toxicity of neoprontosil and the small quantity of sulfanilamide it contains made it reasonable to try the drug in doses at least as large as those of sulfanilamide.

When we first used neoprontosil orally we did not feel justified in relying on it alone, since we did not actually know how effective it was; hence it was used in conjunction with sulfanilamide in certain cases. In addition, a considerable number of patients were treated with neoprontosil because they were intolerant of sulfanilamide.

TABLE 2.—*Neoprontosil: Age of Patients, Dose, Duration of Treatment, Chemical Examination of Blood*

1. Ages of patients treated, range	13 to 83 years
2. Average dose per course of treatment	26.5 Gm.
3. Largest single dose per day	6 Gm.
4. Largest total quantity given any patient	90 Gm.
5. Average duration of treatment	7 days
6. Longest duration of treatment	25 days
7. Average concentration of free sulfanilamide in blood	2.1 mg. per 100 cc.
8. Highest concentration of free sulfanilamide in blood	3.6 mg. per 100 cc.

We have given neoprontosil orally either alone or in conjunction with some other of the sulfonamide drugs to ninety-three patients (tables 1 and 2). The indications were the same as those for the use of sulfanilamide.

The most important figure in table 1 is that showing the low incidence of toxic reactions to the use of neoprontosil. The incidence of toxic symptoms from sulfanilamide, as noted in our experience and in the literature, is found to be far higher than that noted in this series from neoprontosil. Furthermore, ten cases were observed in which neoprontosil gave satisfactory therapeutic results after sulfanilamide had produced symptoms of toxicity. In three cases of chronic ulcerative colitis the results were similar, but these three cases are not included in table 1.

A rather large percentage of failures was noted. In no one of these cases, however, was an organism demonstrated on which any sulfonamide compound has so far been shown to be bactericidal. We felt that the trial of neoprontosil justified its use in attempted treatment of a variety of diseases which included infections due to staphylococci, Streptococcus viridans and tubercle bacilli even though sulfanilamide had been shown to be without effect against infection by these organisms.

8. Hofmann, Edmund: Beobachtungen bei Ulironbehandlung der Gonorrhoe, Dermat. Wchnschr. **106:** 101-103 (Jan. 22) 1938.
9. Tietze, Albrecht: Periphere Lähmungen nach Ulironbehandlung, München. med. Wchnschr. **85:** 332-333 (March 4) 1938.
10. Hüllstrung, H., and Krause, F.: Polyneuritis nach sulfonamidhaltigen Verbindungen bei Menschen und Tauben, Deutsche med. Wchnschr. **64:** 114-116 (Jan. 21) 1938.
11. These include:
Hageman, P. O.: Toxicity of Sulfanilamide: A Study of the Pathological Lesions in White Mice, Proc. Soc. Exper. Biol. & Med. **37:** 119-122 (Oct.) 1937.
Barlow, O. W.: Relative Toxicities and Therapeutic Values of Three Chemotherapeutic Agents of the Sulfonamide Type, ibid. **37:** 315-318 (Nov.) 1937.
Long, P. H., and Bliss, Eleanor A.: Use of Para Amino Benzene Sulfonamide (Sulfanilamide) or Its Derivatives in Treatment of Infections Due to Beta-Hemolytic Streptococci, Pneumococci and Meningococci, South. M. J. **30:** 479-487 (May) 1937.
Whitby, L. E. H.: An Experimental Assessment of the Therapeutic Efficacy of Amino Compounds, with Special Reference to *p*-Benzylamino-Benzenesulfonamide, Lancet **1:** 1517-1519 (June 26) 1937.
Kolmer, J. A.; Brown, Herman, and Raiziss, G. W.: The Chemotherapy of Experimental Streptococcus Infections of Rabbits, with Special Reference to Pyridine Compounds and Prontosil Soluble, J. Pharmacol. & Exper. Therap. **61:** 253-271 (Nov.) 1937.
Raiziss, Severac and Moersch.[14]
12. Berger, E.: Die Wirkung des Prontosils auf die experimentelle Streptokokkensepsis nach Wundinfektionen, Klin. Wchnschr. **16:** 53-55 (Jan. 9) 1937. Raiziss, Severac and Moersch.[14] Rosenthal, Bauer and Branham.[13]
13. Rosenthal, S. M.; Bauer, Hugo, and Branham, Sara E.: Studies in Chemotherapy: Comparative Studies of Sulfonamide Compounds in Experimental Pneumococcus, Streptococcus and Meningococcus Infections, Pub. Health Rep. **52:** 662-671 (May 21) 1937.
14. Raiziss, G. W.; Severac, Marie, and Moersch, J. C.: Chemotherapeutic Studies of Sulfamidyl (Para-Amino-Benzene-Sulfonamide) in Experimental Beta-Hemolytic Streptococcic Infection, J. Chemotherapy **14:** 1-11 (April) 1937.

15. Supplied through the courtesy of the Department of Medical Research of the Winthrop Chemical Company.

In addition, Hodgkin's disease, periarteritis nodosa, thrombo-angiitis obliterans, infected pulmonary embolus and diffuse arteritis were uninfluenced by treatment with neoprontosil, as might be expected from previous experience with sulfanilamide.

The mild nature of the toxic manifestations attributable to neoprontosil deserves emphasis. Cyanosis, insufficient to hinder treatment, was detected in four cases. Gastrointestinal intolerance to the drug, evidenced by nausea, cramps and vomiting, forced discontinuance of use of the drug in four cases; of these, two patients also used alcohol at the same time, which appeared to accentuate the irritant effect of the neoprontosil. Only one patient, who suffered from chills, fever and vomiting, was acutely sick from the use of

TABLE 3.—*Uncomplicated Chronic Ulcerative Colitis* Treated with Neoprontosil (Prontosil Soluble) or Similar Compounds*

Case	Duration of Illness, Yr.	Result of Treatment	Period of Observation, Mo.	Drug Used	Toxic Reactions	Comment
1	6	Marked improvement	8	Sulfanilamide Neoprontosil D 373	Severe None None	Symptom free; proctoscopic examination negative
2	3	Marked improvement	3	D 373 Neoprontosil	Severe None	Slight recurrence of symptoms when not taking the drug
3	½	Marked temporary improvement	7	Sulfanilamide Neoprontosil	Mild None	Slight recurrence of symptoms
4	4	Marked improvement	2	Neoprontosil	None	Symptom free; proctoscopic examination negative
5	3½	Marked improvement	5	D 373 Sulfanilamide Neoprontosil	Mild† Mild None	Nearly symptom free
6	1½	Marked improvement	1½	Neoprontosil	None	Nearly symptom free
7	10	Considerable improvement	7	Neoprontosil	Mild at first	Definite improvement, larger doses necessary
8	7	Temporary improvement	4	D 373	Severe†	Peripheral neuritis, drug discontinued; ileostomy
9	1¼	Marked improvement	¾	Neoprontosil	None	Symptom free; proctoscopic examination negative

* Proctoscopic evidence of chronic ulcerative colitis in each case.
† Indicates occurrence of peripheral neuritis.

the drug and recovery was immediate on discontinuing its use. Satisfactory results were noted in one case each of infection due to pneumococci of types 1, 2, 7 and 8.

Although we do not believe that neoprontosil is effective if sulfanilamide fails from the therapeutic point of view, nevertheless neoprontosil appears to be of importance as a substitute when sulfanilamide is not well tolerated. It is our clinical impression that the therapeutic effect of neoprontosil given orally is obtained more slowly than that of sulfanilamide given by the same route.

The demonstration of sulfanilamide in the blood of a large number of patients treated with neoprontosil suggests that toxic effects may be the same as those when sulfanilamide is used. The toxicity of neoprontosil, however, appears to be low. Urinalysis has revealed no evidence of renal damage or irritation. In most instances in which frequent counts of blood cells, study of morphology of the cells and determinations of hemoglobin have disclosed changes, they could be considered to be associated with the primary disease. Acidosis never has become manifest clinically and cutaneous lesions have not been detected.

Slight fatigue and vertigo were noted in several cases. The sense of fatigue was experienced chiefly by those patients who were not seriously sick and it did not constitute a severe annoyance. Mild symptoms of gastrointestinal irritability when present usually appeared within the first day of treatment and generally could be relieved by giving the drug when the stomach was relatively empty. Our routine now includes giving the drug one hour before meals. Vomiting occasionally develops near the third day of treatment, which may necessitate withdrawal of the drug. As with sulfanilamide, these manifestations tend to disappear if brief rest from treatment is allowed. We found it advisable to inform the patients of the red color which appears in the urine and occasionally in the stools.

The concentration of sulfanilamide in the blood of patients to whom neoprontosil was given orally varied from 1 to 3.6 mg. per hundred cubic centimeters. Although these figures are low, the recent work of Osgood [5] and Brownlee indicates that this concentration of sulfanilamide may be therapeutically effective. The early clinical observations of the use of these compounds demonstrated therapeutic effectiveness with smaller doses of neoprontosil than were administered to the patients in this series of cases.

Conclusions cannot be drawn from so few cases but perhaps we may suggest that neoprontosil when given by mouth constitutes a fairly effective therapeutic agent associated with relatively little toxicity. Oral administration possesses advantages over parenteral administration because it affords the use of larger doses, which permit greater concentrations in the tissues and greater therapeutic effectiveness and because it can be easily given. Our experience suggests that its chief role may be in treatment of patients who are moderately or markedly intolerant of sulfanilamide even in smaller doses than are usually administered and who urgently need treatment with some other agent that is valuable in combating infection. However, warning must again be sounded concerning the possibility of the occurrence of the toxic manifestations already noted in the use of sulfanilamide. Moreover, the existence of toxic features peculiar to neoprontosil alone has not been disproved.

TREATMENT OF CHRONIC ULCERATIVE COLITIS WITH SULFANILAMIDE AND SIMILAR COMPOUNDS

This part of the paper is a preliminary report on the use of sulfanilamide, neoprontosil and di-methyl-disulfanilamide in the treatment of certain cases of chronic ulcerative colitis.

The first patient who was given this treatment (patient 1, table 3) had been troubled with chronic ulcerative colitis intermittently for six years in spite of intensive treatment with dietary measures, serum and vaccine. On the fourth day after treatment with sulfanilamide was started, a severe toxic reaction occurred and use of the drug was discontinued. Following this the patient noticed marked improvement in the symptoms of colitis; the number of stools was greatly reduced and they contained much less blood and pus. After five weeks of improvement her symptoms recurred but because several

further attempts to use sulfanilamide were attended by prompt occurrence of toxic manifestations it was decided to try neoprontosil orally. The result was striking; within a week the patient was having one or two formed stools daily and the bleeding had practically disappeared. Since that time improvement has been maintained following repeated courses of treatment with neoprontosil. Proctoscopic examination on several previous occasions had disclosed lesions of chronic ulcerative colitis with moderate activity, but proctoscopic examination five weeks after treatment with neoprontosil had been started revealed that the ulcerative process was quiescent.

Although chronic ulcerative colitis often is characterized by spontaneous remissions, nevertheless we felt that the prompt subsidence of symptoms in this case suggested that the drugs used had been of benefit. This opinion was shared by Dr. Bargen, who had observed this patient with us and further trial in other cases was undertaken with his approval.

We have treated with sulfanilamide, neoprontosil or di-methyl-di-sulfanilamide twelve patients who had chronic ulcerative colitis. In each case the diagnosis was confirmed by proctoscopic examination. In eleven cases roentgenograms of the colon were made and in eight of these there was evidence of chronic ulcerative colitis above the rectosigmoid region. In nine cases the chronic ulcerative colitis was uncomplicated by other disease and these have been grouped together in table 3.

In each of these nine cases improvement was definite. In six of these nine cases (cases 1, 2, 4, 5, 6 and 9, table 3) improvement was so striking and so prompt as to leave little doubt as to the value of the drug used. About the fourth day after treatment had been started the patients noted marked reduction in the number of stools and in the amount of bleeding, and this improvement continued until the patient was having one or two formed stools daily without gross blood. There was a tendency to slight recurrence of symptoms when administration of the drugs was discontinued, but this again was promptly controlled as soon as treatment was resumed. Gradually the interval between courses of treatment was lengthened without resulting recurrence of symptoms, and subsequent proctoscopic examination of four patients has given no evidence of chronic ulcerative colitis.

These patients have been observed only for from three weeks to eight months and for this reason our report is only a preliminary one. Because of the nature of the disease, it is likely that progress will not continue to be good in all these cases and we do not offer this treatment as a cure for chronic ulcerative colitis. We are inclined to believe that the drugs concerned are of value in the treatment of certain cases of chronic ulcerative colitis and that continued experience will enable a decision as to favorable types of cases for treatment. In a later paper, after further observation, we will publish a more detailed report.

In case 3 (table 3) improvement was just as striking as it was in the others for at least five months but thereafter there was some recurrence of symptoms, which have tended to persist in spite of further treatment with neoprontosil.

In case 7 the disease had been present for ten years with involvement of the entire colon. The patient had been bedfast for two months shortly before admission and had received considerable treatment without benefit. Following intensive treatment with neoprontosil, general improvement and lessening of the colonic symptoms resulted.

Case 8 must be regarded as the only failure in this group of cases. This patient was ill from stubborn chronic ulcerative colitis of long standing for which enterostomy had been suggested. His early response to di-methyl-di-sulfanilamide was striking but did not persist. Peripheral neuritis necessitated immediate withdrawal of the drug. Subsequently enterostomy was performed and when he was dismissed from the clinic he had nearly recovered from the peripheral neuritis.

Table 4 represents three patients who had other disease besides chronic ulcerative colitis. In two of these, and possibly in all three, the other disease was such as to prevent the persistent improvement noted in the uncomplicated cases.

In case 10 (table 4) improvement was temporary. Marked diverticulosis of the sigmoid and descending colon possibly interfered with the treatment of the chronic ulcerative colitis.

In case 11 (table 4) chronic ulcerative colitis complicated biliary cirrhosis. The colitis responded favorably, although not completely, to the use of neoprontosil but the serious biliary cirrhosis prevented adequate treatment of the colitis.

In case 12 (table 4) improvement followed treatment with neoprontosil. However, because of exacerbation of symptoms and the presence of a mass in the right side of the abdomen, another roentgenogram of the colon was made. This disclosed the presence of a carcinoma of the colon as a complication of the ulcerative colitis. This finding was confirmed at operation.

TABLE 4.—*Complicated Chronic Ulcerative Colitis Treated with Neoprontosil (Prontosil Soluble) or Similar Compounds*

Case	Complication	Duration of Illness, Yr.	Result of Treatment	Period of Observation, Mo.	Drug Used	Toxic Reactions	Comment
10	Marked diverticulosis of colon	¼	Temporary improvement	2½	Neoprontosil	None	Symptoms recurred
11	Chronic biliary cirrhosis	½	Temporary improvement	8	Sulfanilamide Neoprontosil	Moderate None	Symptoms of colitis improved; inadequate treatment permitted
12	Multiple carcinomas of colon	5	Temporary improvement	3	Neoprontosil	None	Symptoms recurred and progressed

Only brief comment will be made concerning dosage, drug used and selection of patients suitable for treatment. Most of the patients received from 3.25 to 5 Gm. of sulfanilamide or neoprontosil daily for from ten days to two weeks. The same course was repeated several times, with intervals of a week or two between courses, and then the interval between treatments was gradually lengthened. At present we are modifying this plan somewhat by continuing administration of the drug in reduced dosage during what were previously the rest periods of the first few weeks of treatment.

As has been pointed out previously, neoprontosil possesses characteristics which make it the sulfonamide drug of choice in treatment of such conditions as chronic ulcerative colitis wherein prolonged therapy is indicated and severe toxic reactions may have serious consequences. Its lack of toxicity is evident in table 3.

Some of our associates at the Mayo Clinic have noted less favorable results than those we have had in cases of chronic ulcerative colitis in which treatment has been by means of the drugs under consideration. They have called attention to the occurrence of fatal jaundice in two such cases in which sulfanilamide was administered. In one case it is doubtful whether the sulfanilamide played an important role in the fatal result. The patient was very ill with fever, marked leukocytosis

and severe secondary anemia. In five days only 50 cc. of 5 per cent solution of neoprontosil and 140 grains (9 Gm.) of sulfanilamide were administered; jaundice was not noted until ten days after administration of the drugs had been discontinued. In the other case, however, it is probable that sulfanilamide was responsible for the fatal jaundice although it is reasonable to assume that the liver of this acutely ill patient had been damaged previously and that this injury made her particularly susceptible to the toxic action of sulfanilamide.

Such catastrophes demonstrate the necessity of care in selection of patients for treatment and in selection of the drug to be used. A patient who is not too ill and whose disease is of relatively mild degree offers the best prospect of improvement and presents a good margin of safety should a toxic reaction occur. Most of the patients in our series of cases have been carefully selected and are of this type.

Apparently sulfanilamide, neoprontosil and di-methyl-di-sulfanilamide are of value for treatment in selected cases of chronic ulcerative colitis. Di-methyl-di-sulfanilamide, however, should not be used at present because of the danger of peripheral neuritis which its use entails. Neoprontosil usually is preferred to sulfanilamide because it is better tolerated by the patient who has chronic ulcerative colitis and because it seems to be adequately effective.

SUMMARY

We have mentioned the use of sulfanilamide, di-methyl-di-sulfanilamide and neoprontosil by oral administration in the treatment of various infections. Sulfanilamide, although apparently possessing therapeutic advantages over the latter two preparations, nevertheless appears to have more of a tendency to produce toxic manifestations. Di-methyl-di-sulfanilamide, because of a tendency to produce peripheral neuritis, is contraindicated for general use at this time. Neoprontosil administered orally, while apparently less effective therapeutically than sulfanilamide, seems to be less likely to produce toxic manifestations and therefore is of value in some instances wherein sulfanilamide cannot be satisfactorily given. Certain cases of chronic ulcerative colitis seem to offer a favorable field for the use of neoprontosil or the cautious administration of sulfanilamide.

ABSTRACT OF DISCUSSION

DR. DWIGHT L. WILBUR, San Francisco: Sulfanilamide and its related compounds apparently possess greater value as chemotherapeutic agents than any other group of drugs developed since the synthesis of the arsenicals of the arsphenamine group. To some degree it is unfortunate that the almost universal use of the drug in the treatment of infections has occurred prior to the development of more adequate knowledge of the pharmacologic effects of this group of drugs. Because of this lack of knowledge, positive answers cannot be given to such important questions as the dosage of sulfanilamide which is adequate, as to the values for sulfanilamide in the blood which must be reached to insure a maximum therapeutic response, as to the interval of time over which the drug must be given, and as to the toxic effects of the drug and their prevention. The results which Dr. Bannick and his associates have presented are of great interest. They substantiate previously made reports of success of sulfanilamide in the treatment of a variety of infections and they add reports of the possible therapeutic value of sulfanilamide in chronic ulcerative colitis. It will be interesting to see whether the latter results can be duplicated by others and if they will persist for longer than a few months after treatment with sulfanilamide has been discontinued. It is important that in the treatment of acute infections with sulfanilamide good results are obtained within a few days if the dosage is adequate. If the drug is administered in large doses and there is no effect on the acute infection within a few days, it is quite likely that the drug will be ineffective and it should be discontinued. Any one who has used sulfanilamide in more than a few cases is aware of some of the toxic manifestations which not uncommonly result and which lead to nausea, vomiting, vertigo, cyanosis, headache and nervous symptoms. Because these toxic manifestations are relatively common it is essential that every patient who receives the drug be under the daily observation of his physician. Two of the undesirable effects of the drug may be very simply controlled. By the simultaneous administration of sodium bicarbonate in relatively small doses one may overcome the acidosis which constantly accompanies administration of sulfanilamide. Cyanosis, which is due to the formation of methemoglobin, may be controlled by the administration intravenously to adults of 50 cc. of 1 per cent methylene blue.

DR. EDWIN E. OSGOOD, Portland, Ore.: Such studies are often hard to evaluate because of the difficulty of securing adequate controls. I have no clinical experience with these preparations but have used the method of marrow culture to make a comparative study of the same drugs. Marrow cultures infected with beta hemolytic streptococci were mixed thoroughly in one vial and subdivided into a series of vials, one of which was left as a control, and to the others concentrations of prontosil soluble (the disodium salt of 4-sulfamido-phenyl-2′-azo-7′-acetylamino-1′-hydroxynaphthalene-3′,6′ disulfonic acid), 1 : 10,000 sulfanilamide and other sulfanilamide derivatives were added. The concentrations of the more complex compounds were so calculated that the amount of sulfanilamide which could theoretically be derived from each was the same, namely 1 : 10,000. Pour plate colony counts were made at intervals. In these experiments sulfanilamide itself proved superior to the other preparations studied in the concentrations employed, but all the preparations were definitely of value, while they have practically no effect in ordinary bacteriologic medium. These experiments would seem to suggest that the effectiveness of the more complex compounds could be explained by the sulfanilamide liberated from them. It is my impression that the belief that prontosil soluble might be more effective than sulfanilamide has been based on the assumption that a concentration of 1 : 10,000 sulfanilamide was essential for effective action and the observation that doses of prontosil soluble which could not possibly give rise to that concentration of sulfanilamide were effective. In our marrow cultures, however, 1 : 100,000 sulfanilamide was sufficient for sterilization to occur in the majority of the cultures inoculated with small numbers of streptococci. The authors have arrived at the same plan of sulfanilamide therapy that our marrow culture studies showed to be desirable, namely that administration be begun promptly, that it be given at frequent intervals, preferably every four hours, day and night, and that the drug administration be continued until the cultures are negative even though the clinical symptoms have disappeared. If the authors' studies lead to a method of value in ulcerative colitis it is a very important contribution because this disease is difficult to control. Even though prontosil soluble is less effective in our marrow cultures than corresponding doses of sulfanilamide, it does not necessarily follow that it has no place in therapy since it may be of value given by mouth in the occasional patient who finds sulfanilamide too irritating to the stomach.

DR. RUSSELL L. HADEN, Cleveland: Dr. E. N. Collins of the Cleveland Clinic has used sulfanilamide in the treatment of eleven cases of chronic ulcerative colitis during the past year. The results have been excellent in eight cases. The drug has been administered by mouth and by retention enema.

DR. E. G. BANNICK, Seattle: I want to call attention to the importance of clinical observations in determining the true value of any new drugs such as these. It is not possible to determine accurately what the clinical results are going to be from the standpoint either of therapeutic effectiveness or of toxicity by experimental methods alone. This fact is clearly shown in the use of disulfanilamide. This drug has been

carefully studied by animal experimentation, in which it was shown to be much less toxic than sulfanilamide; and yet it was not until it had been tried clinically that the occurrence of peripheral neuritis was noted following the administration of the drug in some patients. I want again to emphasize the importance of proper selection of patients for the use of these drugs in the treatment of ulcerative colitis. I believe these drugs are of real value in the treatment of some patients afflicted with this disease, but it must be cautiously administered.

VITAMIN A DEFICIENCY AND DARK ADAPTATION

BERTHA L. ISAACS, M.B.
FREDERIC T. JUNG, PH.D., M.D.
AND
A. C. IVY, PH.D., M.D.
CHICAGO

Night blindness or hemeralopia as the result of qualitatively inadequate dietaries has been recognized from the time of Hippocrates.[1] However, for many years this condition was considered of rare occurrence except in certain communities or during periods of fasting, famine or war.

The recent reports by Jeans and his co-workers,[2] Jeghers,[3] Park,[4] Corlette and his associates,[5] Barborka[6] and others suggest that this condition is relatively frequent. The literature is in agreement as to the infrequency of frank cases of night blindness associated with xerophthalmia, xerosis and keratomalacia in the United States. Each of these workers was tested for impaired dark adaptation by means of an instrument designed for clinical use and known as the biophotometer. This instrument purports to determine vitamin A deficiency by measurement of the degree of impairment of the light threshold and the rate and degree of dark adaptation. Other means for testing dark adaptation have been utilized in the past. Among these are the glowing platinum wire,[7] the Tscherning glasses,[8] and the Edmund test letters.[9] Since the introduction of the Birch-Hirschfeld[10] photometer several others have been recommended.[11]

It is not in the scope of the present paper to review all the scientific literature pertaining to dark adaptation and its measurement, or the relationship between vitamin A deficiency and abnormalities of vision. Those interested may consult the articles by Adams,[12] Hecht,[13] Wald,[14] Fridericia and Holm,[15] Holm[16] and Tansley.[17]

Thus far only six groups of workers[18] have reported the results of their studies pertaining to the relation of vitamin A to dark adaptation as measured by the biophotometer, although it is well known that many are working with this instrument. Only one of the clinical reports, that of Palmer and Blumberg,[18] has criticized the use of the biophotometer as a test for vitamin deficiency. In making a second such report we do so not in a spirit of destructive criticism but in an effort to clarify certain problems that became manifest to us while we were using the apparatus.

PROCEDURE

Our first group studied was composed of twenty apparently healthy graduate students between the ages of 21 and 45. Daily readings were made with the biophotometer. The readings were obtained on each person at the same hour for ten consecutive days. We followed the technic prescribed by Jeans, Blanchard and Zentmire[2] with two exceptions: One was that each day before entering the dark room the subject sat for five minutes in a room with a known constant illumination. The other exception was that we repeated the three minute light exposure. This provided us with a series of readings as follows:

1. Immediately after entering the dark room.
2. Five minutes after entering the dark room.
3. Ten minutes after entering the dark room.

Light for three minutes.

4. Thirty seconds after light.
5. Three minutes after light.
6. Six minutes after light.
7. Ten minutes after light.

Light for three minutes.

8. Thirty seconds after light.
9. Three minutes after light.

The second group of persons whom we studied consisted of 123 sophomore medical students between the ages of 19 and 34 years. The same routine was followed and two sets of readings were made on each student. The second set was obtained one week after the first at the same hour of day. All our data were then subjected to statistical analysis. This was done because we felt that the objection to most of the work published in connection with the biophotometer is that conclusions have been drawn not from numerical treatment of readings but from purely intuitive interpretation of curves. The standards used have been obtained by dividing large groups of subjects into low,

From the Department of Physiology and Pharmacology, Northwestern University Medical School.

1. Littré: Oeuvres complètes d'Hippocrate **9:** 159, 1839-1861.
2. Jeans, P. C., and Zentmire, Zelma: A Clinical Method for Determining Moderate Degrees of Vitamin A Deficiency, J. A. M. A. **102:** 892-895 (March 24) 1934; The Prevalence of Vitamin A Deficiency Among Iowa School Children, ibid. **106:** 996-997 (March 21) 1936. Jeans, P. C.; Blanchard, Evelyn, and Zentmire, Zelma: Dark Adaptation and Vitamin A, ibid. **108:** 451-458 (Feb. 6) 1937.
3. (*a*) Jeghers, Harold: The Degree and Prevalence of Vitamin A Deficiency in Adults, J. A. M. A. **109:** 756-761 (Sept. 4) 1937; (*b*) Night Blindness as a Criterion of Vitamin A Deficiency: Review, Ann. Int. Med. **10:** 1304-1334 (March) 1937.
4. Park, I. O.: Preliminary Observations on Vitamin A Deficiency as Shown by Studies with the Visual Photometer, J. Oklahoma M. A. **28:** 357-364 (Oct.) 1935; Further Observations on Vitamin A Deficiency as Shown by Studies with the Visual Photometer, ibid. **29:** 129-141 (April) 1936.
5. Corlette, M. B.; Youmans, J. B.; Frank, Helen, and Corlette, Mildred G.: Photometric Studies of Visual Adaptation in Relation to Mild Vitamin A Deficiency in Adults, Am. J. M. Sc. **195:** 54-65 (Jan.) 1938.
6. Barborka, C. J.: Treatment by Diet, ed. 3, Philadelphia, J. B. Lippincott Company, 1937, p. 12.
7. Aubert, H.: Physiologie der Netzhaut, Breslau, 1865.
8. Tscherning, M.: Question of Adaptation of Vision, Acta ophth. **1:** 265-267, 1924 (in French).
9. Edmund, Carsten: Some Methods of Measuring Dark Vision, Acta. ophth. **3:** 153-169, 1925.
10. Birch-Hirschfeld, A.: Ueber Nachtblindheit im Kriege, Arch. f. ophth. **92:** 18 (Dec.) 1916.
11. Ferree, C. E., and Rand, G.: The Testing of Fitness for Night Flying: The Light Sense, Am. J. Ophth. **20:** 797-808 (Aug.) 1937. Feldman, J. B.: Instrument for Determining Course of Dark Adaptation and for Measuring Minimum Light Threshold, Arch. Ophth. **12:** 81-85 (July) 1934. Hecht, Selig: Personal communication to the authors.
12. Adams, D.: Dark Adaptation: A Review of the Literature, Medical Research Council, Special Report Series 127, London, 1929.
13. Hecht, Selig: Rods, Cones and the Chemical Basis of Vision, Physiol. Rev. **17:** 239-290 (April) 1937.
14. Wald, George: Carotenoids and the Visual Cycle, J. Gen. Physiol. **19:** 351 (Nov.) 1935.
15. Fridericia, L. S., and Holm, E.: Experimental Contributions to the Study of the Relation Between Night Blindness and Malnutrition, Influence of Deficiency of Fat-Soluble A Vitamin in the Diet on the Visual Purple in the Eyes of Rats, Am. J. Physiol. **73:** 63-78 (June) 1925.
16. Holm, E.: Demonstration of Hemeralopia in Rats Nourished on Foods Devoid of Fat-Soluble A Vitamin, Am. J. Physiol. **73:** 79-84 (June) 1925.
17. Tansley, Katherine: The Regeneration of Visual Purple, Its Relation to Dark Adaptation and Night Blindness, J. Physiol. **71:** 442-458 (April) 1931.
18. Palmer, C. E., and Blumberg, Harold: The Use of a Dark Adaptation Technic (Biophotometer) in the Measurement of Vitamin A Deficiency in Children, Pub. Health Rep. **52:** 1403-1418 (Oct.) 1937. Jeans and Zentmire.[2] Jeans, Blanchard and Zentmire.[2] Jeghers.[3] Park.[4] Corlette, Youmans, Frank and Corlette.[5] Barborka.[6]

midzone and high according to their readings, and the important logical step of substituting the word "subnormal" for the word "low" has not been subjected to critical analysis. We felt it necessary to determine whether any given subject would give constant readings on the machine and whether the machine was sufficiently reliable to permit detection of day to day variations in given subjects, and significant differences among different subjects. Our first step was to calculate the probable error of each one of the nine readings obtained on the ten consecutive days for the twenty graduate students. We also determined the self correlation of pairs of readings from the entire 143 subjects studied; this statistical device is described by Sorenson.[19]

TABLE 1.—*Reliability of Successive Biophotometer Readings*

Reading	Self Correlation of 25 Subjects by the Rank-Order Method	Average of Probable Error of the Mean of 10 Readings on Each of 20 Subjects
1	0.08*	0.51*
2	0.67	0.36†
3	0.62	0.26†
4	0.53	0.62*
5	0.41	0.41†
6	0.45	0.36†
7	0.36*	0.23

Relative reliability of successive biophotometer readings.
* Least reliable as judged by indicated criteria.
† Chosen as most reliable and used in formulating index B.
Index B = sum of readings 2, 3, 5, 6.
Self correlation of twenty-five pairs of values of B = 0.805.

DATA AND COMMENT

The first fallacy encountered arose from the fact that three of the most conspicuous points on the curve obtained by plotting the readings on the photometer were the most unreliable. These points are given by readings 1, 4 and 7 (table 1). Unless the data are studied in this manner one is easily deceived as to the reliability of the readings obtained. The narrow range in which a given reading must fall creates a false impression of constancy; the method of self correlation reveals how meaningless this constancy is. Table 1 also shows that the most reliable reading is not 4 (on which most observers place reliance) but readings 2, 3, 6 and possibly 5. From these four we obtained by simple addition a value which we called index B. It gives a self correlation of 0.805, which is high enough to be passable.

TABLE 2.—*Frequency-Distribution of Index C* Showing Comparative Symmetry Obtained by Direct Use of Biophotometer Dial Readings*

Index C	Frequency	Index C	Frequency
170-179	1	240-249	22
180-189	0	250-259	11
190-199	7	260-269	9
200-209	9	270-279	2
210-219	20	280-289	1
220-229	23	290-299	1
230-239	16	300-309	1
Total			123

* Average of first two values of index B for each of 123 subjects.

The second fallacy is involved in the translation of dial readings into millifoot candles. This is done by means of a table supplied by the manufacturers. Graphing the figures in the table gives an exponential curve whose equation we were able to obtain in the case of our own instrument. This is:

$$y = a^{(b-x)}$$

or $\log y = (b-x) \log a$

y = brightness of test light in millifoot candles
x = dial reading
a = constant = 1.096
b = constant = 69.47

The properties of this equation are such that when a series of human subjects are rated according to their biophotometer performance, in terms of millifoot candles, the supernormal and normal readings are crowded together into a very narrow zone while the subnormals appear conspicuously isolated. In an effort to obviate this some investigators have plotted their results on semilogarithmic paper. This does obviate the crowding of normal and supernormal readings. However, one could avoid the two successive steps by simply working with the dial readings that one started with. Table 2 shows that index B yields a symmetrical distribution in which the supernormal, normal and so-called subnormal readings are all visible. It should be noted that if this were a set of measurements on height, weight or other dimensions the persons in the lower percentiles would not necessarily be called subnormal. In short, it is necessary to recognize the possibility that constitutional factors may be responsible for some of the individual differences.

TABLE 3.—*Results of Tests in Twenty-Two Cases*

Subject	Readings				Comment
4	40	31	22	26	Effect of centripetal drift on the status of subjects rated as "supernormal" and "subnormal" on the basis of a test strongly affected by chance errors.
9	31	35	33	25	
14	26	27	30	32	
20	35	30	31	32	
23	33	30	36	28	
28	35	35	39	35	Each of the twenty-two subjects was rated at four different sittings according to reading 4 on the biophotometer; none received any therapy; nevertheless the five subjects who did worst at the first two sittings showed a satisfactory "improvement" at the third and fourth sittings; for the same reason, the five who did best at the first two sittings were adversely affected:
30	28	34	32	35	
32	26	29	29	25	
33	34	27	30	33	
40	26	38	32	28	
42	23	33	30	31	
46	33	30	26	30	
54	32	27	34	28	
58	32	33	32	28	
60	28	30	28	27	
62	28	34	26	32	
92	27	24	26	28	
94	23	27	26	29	
96	32	33	31	36	
101	24	32	32	27	
108	28	31	29	29	
143	30	29	35	29	

	Before	After	Diff.
Five worst	26.50±0.38	28.30±0.56	+1.80
Five best	33.70±0.43	30.30±0.49	−3.40

The average for the entire group remained constant: 29.9, 30.0, 30.4, 29.6.

A third fallacy assumes a particularly striking form as a result of the conspicuous position given to the so-called subnormal readings when the measurements are stated in terms of millifoot candles. According to some observers when their "subnormal subjects" are given halibut liver oil or vitamin A in any other form they promptly show a striking improvement. Table 3 shows that they must by all the laws of probability show an equally striking improvement if left untreated. This phenomenon is reported in more detail in a recent article by Jung.[20] This fallacy arises whenever subnormal subjects are selected from a large group by a test which is strongly affected by chance errors, as we have shown reading 4 to be. The fallacy can be avoided by subdividing the subnormal subjects into two groups, one part of the group being used as controls, as we have done in a series now being studied. This has been neglected in two published articles.[21] We have proposed for this fallacy the term "centripetal

19. Sorenson, Herbert: Statistics for Students of Psychology and Education, New York, McGraw-Hill Company, 1936, pp. 399 ff.

20. Jung, F. T.: Centripetal Drift: A Fallacy in the Evaluation of Therapeutic Results, Science **87**: 461-462 (May 20) 1938.

21. Jeghers,[3a] Corlette, Youmans, Frank and Corlette.[3]

drift" because it affects the upper as well as the lower percentiles in any distribution; it is a simple consequence of the laws of probability. If biophotometer readings are translated into millifoot candles the supernormal readings are so crowded against the normal, to begin with, that the effect on the supernormal readings escapes observation.

TABLE 4.—*Correlation of W/7 (Estimated Habitual Daily Intake of Vitamin A in International Units) with Index C (Number Expressing Facility of Dark Adaptation as Measured by Biophotometer)*

	Index C													
F/5	175	185	195	205	215	225	235	245	255	265	275	285	295	305	Sum
1,500	..	..	1	2	2	1	..	1	2	1	..	..	..	..	10
2,500	..	..	1	1	4	6	4	6	2	1	1	..	..	..	26
3,500	..	..	..	1	5	2	3	2	1	2	1	..	..	..	17
4,500	..	..	..	..	3	2	3	3	1	1	..	..	..	..	13
5,500	..	..	1	1	3	4	2	3	..	1	..	..	..	..	15
6,500	..	..	1	1	2	..	2	1	1	..	..	..	..	..	8
7,500	..	..	1	1	..	1	1	..	1	..	..	..	..	1	6
8,500	..	..	..	2	..	..	..	1	..	..	1	1	..	..	5
9,500	1	..	1	..	..	1	1	1	..	..	..	..	1	..	6
10,500	..	..	..	..	..	1	..	..	2	1	..	..	..	..	4
11,500	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
12,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
13,500	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
14,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
15,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
16,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
17,500	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
	1	0	6	9	30	19	17	18	10	7	3	1	1	1	113

N = 113; r = 0.02 (correction coefficient).

Finally we reach the original purpose of our study, which was the correlation of dietary intake of vitamin A with the dial readings to determine whether such a correlation is significant. The medical students studied were asked to fill out carefully formulated questionnaires on which they listed in detail their total food intake for five days. From these reports we calculated their intake of vitamin A as international units per day, using the tables compiled by Eddy and Dalldorf.[22] Lowest values were selected for each food; therefore, the total represents the minimal rather than the most probable intake. When the daily intake was plotted against index C (latter obtained by averaging index B obtained on first two readings by photometer) it became evident at once that the correlation was near zero (table 4). For the 113 subjects who submitted complete reports the correlation coefficients proved, in fact, to be + 0.02. It seemed possible that the five day period might not represent the habitual gastronomic life of the students; hence we asked each one to list separately an estimate of the usual weekly intake of those foods known to be richest in vitamin A. Plotting the results against index C we again found an insignificant correlation, i. e., + 0.06 for 116 subjects (table 5). The results at first led us[23] to conclude that in the subjects we had studied there was no correlation between dietary vitamin A and dark adaptation and that the chief difficulty in the way of revealing such a correlation, if it did exist, was the inaccuracy of the dietary calculations. We are now forced to conclude that this is not entirely true but that the chief difficulty was in the method we used for measuring dark adaptation.

It should be noted that the daily intake of vitamin A for the entire group ranged from at least 1,650 to 9,725 international units. The report of Jeghers on a similar study indicated that the mode for his subnormal and normal subjects combined was from 3,001 to 4,000 international units; for ours it was approximately the same. This indicates that our subjects were obtaining, as were those of Jeghers, a better than "physiologic minimum" of vitamin A in the diet.[24]

In addition to the dietary information obtained from the questionnaires, each student was asked to answer specific questions as to the following:

1. Ability to see at night.
2. Ability to drive an automobile at night.
3. The time required for him to see in a darkened theater.
4. Presence of lacrimation.
5. Dryness of eyeballs.
6. Burning of eyes.
7. Dryness, itching or scaling of the skin.
8. Presence of any skin lesions.
9. Dryness and falling of the hair.
10. Occurrence of headaches.
11. Weakness or excess fatigue.
12. Loss of weight.
13. Frequency of colds.
14. Presence of constipation.
15. Use of laxatives.
16. Appetite, dyspepsia and the like.
17. Chronic disease (sinusitis, bronchitis and the like).

Tabulation of the answers to the preceding questions revealed nothing significant in relation to the amount of vitamin A ingested or to the biophotometer readings. In fact, many whose vitamin intake was at a high level recorded the presence of some of the symptoms generally considered indicative of vitamin A deficiency. The reverse was likewise true. Calculation of "biserial r" by the method described by Sorenson[19] confirmed the impression gained by simple inspection of the tabulated data. In spite of the fact that our subjects were normal young adults and that much of the questionnaire was of a subjective nature, we believe that any trends toward correlation could have been easily detected.

TABLE 5.—*Correlation of F/5 (Estimated Daily Intake of Vitamin A in International Units During Five Day Observation Period) with Index C (Number Expressing Facility of Dark Adaptation as Measured by Biophotometer)*

	Index C													
W/7	175	185	195	205	215	225	235	245	255	265	275	285	295	305
500	..	..	..	1	..	..	..	1	..	..	1	..	..	..
1,500	..	..	1	1	1	..	..	2	3	..	1	..	..	..
2,500	..	..	..	..	5	5	1	2	3	..	..	..	..	..
3,500	..	..	..	1	4	5	4	4	..	1	1	..	..	..
4,500	..	..	..	..	4	3	1	2	1	3	..	..	..	..
5,500	..	..	2	2	2	4	4	2	4	2	..	..	1	..
6,500	1	..	..	..	1	3	..	3	..	..	..	..	..	..
7,500	..	..	1	2	..	2	2	4	..	1	..	..	..	..
8,500	..	..	..	..	1	..	1	..	..	..	..	..	..	..
9,500	..	..	1	1	..	..	1	1	..	1	..	1	..	..
10,500	..	..	1	..	..	..	..	..	..	..	..	..	..	..
11,500	..	..	..	..	..	..	..	..	..	..	..	..	..	1
12,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18,500	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Sums	1	0	6	8	18	23	14	21	11	8	3	1	1	1

N = 116; r = +0.06 (correlation coefficient).

SUMMARY

Our original purpose in this study was to determine whether a correlation exists between dietary intake of vitamin A, biophotometer readings and clinical symptoms. If such a correlation exists it would be possible

22. Eddy, W. H., and Dalldorf, Gilbert: The Avitaminoses, Baltimore, Williams & Wilkins Company, 1937, p. 316-321.

23. Jung, F. T., and Isaacs, B. L.: Dark Adaptation and Intake of Vitamin A, Proc. Am. Phys. Soc., Baltimore, April 1938.

24. Booher, Lela A.: Vitamin A Requirements and Practical Recommendations for Vitamin A Intake, J. A. M. A. **110**: 1920 (June 4) 1938.

to utilize this photometer clinically for the detection of deficiency of vitamin A. Very early we found that it was necessary to know more than we did about the performance of the apparatus before the data obtained could be wisely interpreted. This led us into an analysis which indicated a number of fallacies, the significance of which is readily apparent.

CONCLUSIONS

1. The intake of vitamin A of 143 healthy medical students as determined by calculation from their diets ranged from at least 1,650 to 9,725 international units per day.

2. No correlation could be detected between dietary vitamin A and biophotometer readings. Neither could a correlation be noted in our subjects between vitamin A intake and clinical signs and symptoms of A deficiency.

3. We believe that nothing is gained by translating dial readings of the biophotometer into millifoot candles, because errors are introduced and the effects of certain fallacies are exaggerated thereby.

4. We also believe that the criteria generally chosen for the recognition of vitamin A deficiency by means of the biophotometer are not the most reliable criteria.

5. Far more study is essential before the biophotometer or any similar instrument can be used per se for the detection of vitamin A deficiency in the human being.

303 East Chicago Avenue.

DURATION OF SMALLPOX IMMUNITY

DAVID T. LOY, M.D.
AND
M. W. HUSBAND, M.D.
MANHATTAN, KAN.

In 1936 a study was made [1] of smallpox immunity in 1,053 matriculating college students at Kansas State College. A similar study of 986 students made in September 1937 with additional data on the duration of smallpox immunity and the effect of multiple vaccinations constitutes the basis of this report. Table 1 gives in tabulated form the detailed histories and results on the vaccinated group. This college age group was very largely derived from rural areas and small towns in Kansas.

Of the vaccinated group 74.9 per cent gave a positive history of previous vaccination against smallpox and had a visible scar; 3.3 per cent had not had a previous vaccination but gave a positive history of smallpox; 20.4 per cent had neither been vaccinated nor had smallpox but gave a positive history of chickenpox; 1.2 per cent gave an entirely negative history for previous vaccination against smallpox, smallpox and chickenpox.

The multiple puncture method of vaccination was employed on the skin over the insertion of the deltoid muscle. No dressings or protective shields were used and no secondary infections were encountered. No instance of generalized vaccinia occurred in the group vaccinated. Each student was examined on the second, fourth and seventh days and later if indicated after the date of vaccination. The results were recorded according to the following classification: (*a*) Immune or immediate reaction: the development of a small area of redness with or without the presence of a papule, the height of the reaction being reached within twenty-four to forty-eight hours after vaccination. (*b*) Primary take: the formation of a papule, vesicle and pustule, the height of the reaction being reached within six to ten days after vaccination. (*c*) Secondary take: same as primary take except that it occurred in an individual with a visible vaccination scar or with pockmarks. (*d*) Accelerated reaction: same as primary take except that the reaction was less pronounced, developed more rapidly and disappeared in a much shorter period of time.

Of the vaccinated group 35.3 per cent had immune or immediate reactions, 39.8 per cent had accelerated reactions, 22.7 per cent had primary takes and 2 per cent had secondary takes. The results of the vaccinations of this group are in general similar to those obtained in the group vaccinated in 1936 (table 2). It may be noted that there are more primary takes recorded than there are students with an entirely negative history or with a history of chickenpox only. This result may be partly accounted for by Leake's [2] observation that smallpox does not immunize against vaccination quite as well as against itself. Thus, an individual who has had smallpox may have a primary take when vaccinated against smallpox.

Of the group vaccinated 64.5 per cent (primary takes, secondary takes and accelerated reactions) were in some degree susceptible to smallpox. Of the group previously studied (1936) 61.5 per cent were susceptible to smallpox in some degree. Of the students 74.9 per cent had previous vaccinations. In the former group 78.1 per cent had previous vaccinations.

TABLE 1.—*Histories and Results of the Vaccinated Group*

Race	Sex	Age	Number Vaccinated	Medical History: Negative	Medical History: Previous Vaccination	Medical History: Smallpox	Medical History: Chickenpox	Results of Vaccination: Negative	Results of Vaccination: Immune	Results of Vaccination: Accelerated	Results of Vaccination: Primary Take	Results of Vaccination: Secondary Take
Caucasian	♂	16	15	1	10	0	4	0	5	5	4	1
Caucasian	♂	17	124	2	95	2	25	2	43	51	27	1
Caucasian	♂	18	262	3	192	6	61	1	78	113	62	8
Caucasian	♂	19	151	1	109	4	37	1	55	56	34	5
Caucasian	♂	20	63	0	47	4	12	1	20	27	15	0
Caucasian	♂	21	40	0	31	3	6	0	13	17	10	0
Caucasian	♂	22	20	1	15	0	4	0	5	10	5	0
Caucasian	♂	23	14	0	8	2	4	0	1	8	5	0
Caucasian	♂	24	7	0	5	0	2	0	3	1	2	1
Caucasian	♂	25	2	0	2	0	0	0	0	2	0	0
Caucasian	♂	26	3	0	2	0	1	0	1	1	1	0
Caucasian	♂	27	1	1	0	0	0	0	0	0	1	0
Caucasian	♂	28	1	0	1	0	0	0	1	0	0	0
Negro	♂	18	1	0	0	0	1	0	1	0	0	0
Mongolian	♂	22	1	0	1	0	0	0	1	0	0	0
Caucasian	♀	16	10	0	9	0	1	1	6	2	1	0
Caucasian	♀	17	87	2	63	1	21	4	29	28	23	3
Caucasian	♀	18	111	1	92	5	13	3	51	42	15	0
Caucasian	♀	19	44	0	33	4	7	0	18	15	11	0
Caucasian	♀	20	10	0	9	0	1	0	7	2	1	0
Caucasian	♀	21	7	0	5	1	1	0	2	3	2	0
Caucasian	♀	22	5	0	3	1	1	0	1	2	2	0
Caucasian	♀	23	4	0	4	0	0	0	2	2	0	0
Caucasian	♀	24	1	0	1	0	0	0	0	0	0	1
Caucasian	♀	25	1	0	1	0	0	0	1	0	0	0
Negro	♀	18	1	0	1	0	0	0	0	1	0	0
Total			986	12	739	33	202	13	344	388	221	20

Chickenpox is recorded only in those cases in which there was a negative history of previous vaccination and smallpox.

From the Student Health Service, Kansas State College.
The smallpox vaccine used in this study was generously supplied to us by the Kansas State Board of Health.

1. Husband, M. W., and Loy, D. T.: Immunity to Smallpox, J. A. M. A. **109**: 1797 (Nov. 27) 1937.

2. Leake, J. P.: Questions and Answers on Smallpox and Vaccination, Pub. Health Rep. **42**: 221 (Jan. 28) 1927.

Histories of the dates of previous smallpox vaccinations apparently were accurately obtained from 720 students. Table 3 shows the duration of smallpox immunity in 661 members of this group who had had only one previous vaccination against smallpox. There is considerable variation in the individual cases, but

TABLE 2.—*Comparison of 1936 and 1937 Groups*

Year	Number Vaccinated	Per Cent with Previous Vaccination	Per Cent Susceptible to Smallpox
1936	1,053	78.1	61.5
1937	986	74.9	63.7

the average of the group shows about 20 per cent more students with complete immunity in the group vaccinated from one to five years previously than in the group vaccinated from six to ten years previously. After ten years the number with complete immunity does not decrease appreciably. It may be noted that in the one to five year group there is 1.5 per cent total loss of immunity (secondary takes) while in the six to ten year group there is 4 per cent total loss of immunity. The number of persons with complete immunity at similar periods after previous vaccination in this group is considerably lower than that given by Dearing and Rosenau,[3] who in their study of duration of smallpox immunity following vaccination show that 95 per cent of those vaccinated ten years or less after their vaccination had complete immunity and that of those vaccinated from ten to nineteen years after their first vaccination 67 per cent had complete immunity. The reason for this difference is not obvious but may be the difference in density of population of the areas from which the two groups were derived.

Of the 986 students in the vaccinated group only fifty-nine, or 5.9 per cent, had been vaccinated more than once previously. Only one of this group with

TABLE 3.—*Duration of Smallpox Immunity*

Number of Years Since Last Vaccination	Number Vaccinated	Results		
		Immune Reactions	Accelerated Reactions	Secondary Takes
1	98	73	25	0
2	48	25	23	0
3	30	15	13	2
4	34	14	19	1
5	54	23	30	1
1 to 5	264	150 (56.8%)	110 (41.6%)	4 (1.5%)
6	66	34	32	0
7	69	27	35	7
8	63	19	42	2
9	42	16	25	1
10	56	16	38	2
6 to 10	296	112 (37.8%)	172 (58.1%)	12 (4.0%)
10 to 15	85	35	49	1
Over 15	16	6	10	0
Over 10	101	41 (40.0%)	59 (59.0%)	1 (1.0%)

multiple previous vaccinations had been vaccinated more than twice. Table 4 gives a summary of the results of the vaccination against smallpox in this group and compares the duration of smallpox immunity in the single and multiple previously vaccinated groups. Of the group with multiple previous vaccinations within one to five years 78.8 per cent had complete immunity and there were no cases of secondary takes, whereas in the group with single previous vaccinations within one to five years there were 56.8 per cent with complete immunity and 1.5 per cent with secondary takes or total loss of smallpox immunity.

The results of this group of smallpox vaccinations show that there is a wide individual variation in the duration of smallpox immunity following vaccination, that the number of persons with complete immunity from one to five years after previous vaccination is greater in the group with multiple previous vaccinations than in the group with single previous vaccinations and that in general there would be an increase in the number of completely immune persons if each person was revaccinated once in every five years. These results agree generally with the opinion of Leake,[2] who states that the immunity to smallpox afforded by vaccination is lost by different persons at different rates and that each individual should be vaccinated ordinarily once in every five to ten years.

As in 1936, there were only a few students who refused vaccination. Woodward and Feemster[4] have shown definitely that the number of smallpox cases per unit of population is lower in those states with compulsory vaccination than in those states without compulsory vaccination. In Massachusetts, where there is a compulsory smallpox vaccination law, there has been no case of smallpox reported to the state board of health during the past five years.[5] Since there is no provision for the ideal preventive procedure (compulsory vaccination) in the state of Kansas, we feel that a program of making smallpox vaccination available in an acceptable manner should meet with a favorable response from the inhabitants of the state and aid in the reduction of cases of smallpox.

TABLE 4.—*Comparison of Multiple and Single Vaccinations*

Number of Previous Vaccinations	Number of Years Since Last Vaccination	Number Vaccinated	Results		
			Immune Reactions	Accelerated Reactions	Secondary Takes
2	1 to 5	52	41 (78.8%)	11 (21.1%)	0
1	1 to 5	264	150 (56.8%)	110 (41.6%)	4 (1.5%)
2	6 to 10	6	3	3	0

SUMMARY

1. Of the students who matriculate at Kansas State College (*a*) approximately one fourth have never been vaccinated against smallpox, and (*b*) approximately two thirds are in some degree susceptible to smallpox.

2. Only 5.9 per cent of the 1937 group had been vaccinated more than once previously.

3. There are about 20 per cent more persons with complete immunity in the previously vaccinated one to five year group than in the group vaccinated from six to ten years previously.

4. There are about 20 per cent more persons with complete immunity in the multiple previously vaccinated group than in the once previously vaccinated group.

5. The method of noncompulsory vaccination used has proved to be almost 100 per cent acceptable to the student group.

3. Dearing, W. P., and Rosenau, M. J.: Duration of Immunity Following Vaccination, J. A. M. A. **102**: 1998 (June 16) 1934.

4. Woodward, S. B., and Feemster, R. F.: The Relation of Smallpox Morbidity to Vaccination Laws, New England J. Med. **208**: 317 (Feb. 9) 1933.

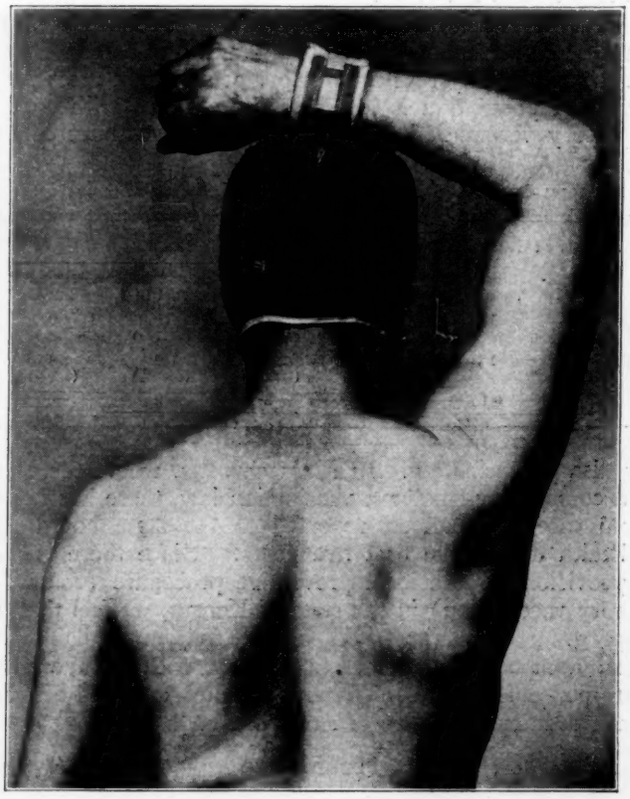
5. Woodward, S. B.: Personal communication to the authors in December 1937.

Clinical Notes, Suggestions and New Instruments

A SHOULDER ABDUCTION CAP

L. E. PAPURT, M.D., CLEVELAND

The present methods of maintaining abduction of the shoulder in the ambulatory patient consist of abduction and airplane splints or plaster casts. The splints are very cumbersome and uncomfortable and require constant attention and adjustment. Plaster casts prevent the administration of physical therapy and active use, which are essential in many shoulder conditions. In fractures about the shoulder, where complete immobilization is desired, splints or casts are essential. However, there are many conditions in which abduction is the only indication. In these cases I have found the abduction cap here illustrated very efficient, allowing patients to be freely ambulatory and often attending to their business.



Application of shoulder-abduction cap.

As is noted in the accompanying illustration, the shoulder abduction cap consists merely of a canvas aviator-type cap and a padded leather wristlet. The cap buckles under the chin and should fit snugly. There is a reinforced loop on top of the cap through which the strap of the wristlet is threaded before it is buckled. At first I used the heavy leather cap worn by aviators but I have found that the ordinary canvas cap worn by boys in winter serves just as well and is not as heavy or as expensive.

I have used this cap with great satisfaction both to myself and to the patient in the following conditions:

1. Subdeltoid bursitis. In both traumatic and infectious bursitis, abduction of the shoulder is an essential part of the treatment. It has been especially useful in elderly persons who fall on the outstretched hand, sustaining both a Colles fracture and a subdeltoid bursitis. After the fracture has been reduced and a cast applied to the wrist, the arm is kept in abduction by the cap, and massage to the shoulder for a few days avoids the stiff shoulder that is seen so often in an elderly person who sustains a Colles fracture and carries the arm in a sling.

2. Following manipulations for subdeltoid bursitis and "frozen shoulders."

3. Rupture of the supraspinatus tendon. As a postoperative form of fixation and abduction the cap has been ideal. In incomplete ruptures in which operative intervention is not necessary it also serves well. I have not had occasion to try it on infants following tenotomy of the sternomastoid muscle or tenotomies in birth palsy deformities, but I am sure that it could readily be used in these conditions. There will probably be other shoulder conditions in which the cap may be used with satisfaction both to the physician and to the patient.

1304 Hanna Building.

CONCURRENT TIC DOULOUREUX AND MÉNIÈRE'S DISEASE TREATED SURGICALLY

H. MASON SMITH, M.D., AND MILLARD WHITE, M.D.
TAMPA, FLA.

Since no report of a case has been found in which tic douloureux and Ménière's disease occurred synchronously and were relieved simultaneously in one operation, the case here presented is believed to be unique in medical literature. The patient experienced complete relief of both syndromes after the operation.

REPORT OF CASE

Mrs. G. H., a white woman aged 43, was admitted to the Tampa Municipal Hospital Dec. 14, 1937, complaining chiefly of vertigo and of tinnitus and deafness in the left ear.

About six years previously the patient had begun to have pain and tenderness over the left frontal part of the scalp and, a few months later, a dull aching pain in the left upper part of the face. Much dental work brought no relief, and the pain became progressively worse until it finally assumed the character typical of the tic douloureux, with shooting pains to the midline of the face and trigger zones. From time to time injections of alcohol were given peripherally; the last one, in October 1937, resulted in relief of the pain, which lasted until admission.

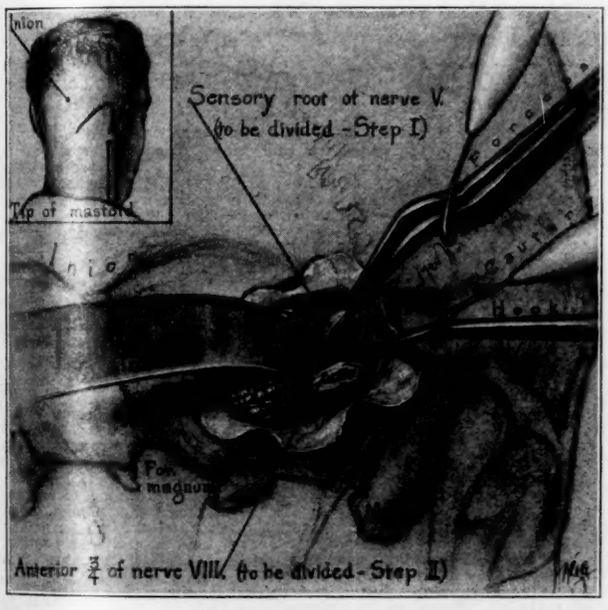
Three weeks before she entered the hospital, the patient stumbled on some steps and fell. She was unconscious for a few minutes, but no injury to her head was observed. For a number of weeks before this injury occurred she had had a ringing in her left ear, headache and some ataxia, characterized by "running into things." Two weeks before admission vertigo developed, with nausea and vomiting, severe headache on the left side and diplopia. She was unable to raise her head from the pillow without dizziness and nausea; her head would fall to the left; objects would rotate. Any sudden motion before her eyes or the turning of her eyes to the left produced vertigo and nausea. A spinal puncture one week before admission resulted in relief of the diplopia and diminution in the severity of the headache, but the other symptoms remained the same and the headache returned to its original intensity. For a month or more prior to admission the patient had suffered from general weakness, polydipsia, sensitiveness to cold and nervousness.

No member of the patient's family had ever had Ménière's disease or tic douloureux, and the family history was otherwise irrelevant. The past medical history showed that at the age of 11 the patient had received a head injury in the left occipital region from a blow. At that time she remained unconscious for twelve hours or more and complete paralysis of all extremities developed, the left side clearing more rapidly than the right. She was confined to her bed for almost a year as a result of this injury. At the age of 22 she married and shortly thereafter was subjected to a suspension of the uterus. Of six pregnancies, two resulted in miscarriages. Twelve years before admission some perineal work was done, and the tubes and ovaries were removed. Two years afterward a complete hysterectomy was performed, and six months later there developed on the left side a perinephric abscess, which was treated by incision and drainage.

The physical examination showed a considerable degree of tenderness of the left frontoparietal part of the scalp. There

was some paresis, with diminished sensibility over the left side of the face, but no muscular atrophy was noted. The pupils of the eyes were equal, reacting to light and in accommodation, but were slightly irregular in contour. There was no disturbance of motility, nor was nystagmus or exophthalmos present. The disks were normal, and the corneal reflex was intact. There was no tremor of the tongue, and it protruded in the midline. The upper teeth had been removed. In both ears the drum and canal were normal. Weber's sign was not present. The left ear showed a nerve deafness approximating 25 per cent. All tendon reflexes were equal but hyperactive. The abdominal reflexes were present and equal. There was no atrophy, and no pathologic reflexes were present. The finger-nose and knee-heel tests were done well. There was no adiadokokinesis. Romberg's sign was slightly positive, with an inclination of the body to fall to the right. Examination of the blood and spinal fluid gave negative results. The basal metabolic rate was minus 27 per cent.

A diagnosis of tic douloureux and Ménière's disease was made and was confirmed by Dr. Walter E. Dandy of Baltimore, to whom the patient was referred. Jan. 11, 1938, Dr. Dandy totally divided the left sensory root and partially divided the eighth



The operation.

nerve. The operation was followed by immediate relief of all symptoms, and they have not returned. The patient is now at home in complete comfort.

The accompanying drawing of the operation done by Dr. Dandy shows the proximity of the nerves involved and makes obvious the ease with which they may be divided in the same operation.

1019 Citizens Bank Building.

Scientific Discoveries of Claude Bernard.—It is now more than half a century since Bernard died and sufficient time has elapsed to permit an estimate of the value of his work. Physiologists are all agreed that in four different departments of their science the name of Claude Bernard stands at the head of the list of those who have made lasting contributions. These discoveries all belong to the first, or Collège de France, period and they are (1) the functions of the pancreas in digestion, (2) the glycogenic function of the liver, (3) the vasomotor system, (4) the action of certain poisons, notably curare and carbon monoxide. None of these discoveries came as a result of his earliest investigation, but, with the exception of the action of poisons, they were a natural sequel to his initial experimental work.—Olmsted, J. M. D.: Claude Bernard, Physiologist, New York, Harper & Bros., 1938.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

PACIFIC AIRVENT NOT ACCEPTABLE

Manufacturer: Pacific Manufacturing Corporation, 4223 Lake Street, Chicago.

The Pacific Airvent is an air filter designed to provide relief for sufferers from hay fever and asthma by removing a high percentage of the pollen, dust and dirt from the air in a given room. For efficient service, according to the firm, the unit will accommodate a room with air capacity of 8,000 cubic feet; this may be approximately 20 by 40 feet in dimensions. The unit proper is a cabinet which slips into a heavy gage metal base with felt bottom which may be fastened to almost any window sill. The exterior of the cabinet is finished in metal to prevent rusting while the inside is of seasoned wood. It is 24 inches wide by 18 inches deep by 12 inches in height and weighs approximately 60 pounds.

In order to make the apparatus useful for ventilation in winter as well as summer, it has been equipped with rubber insulation or weather-stripping. No-draft stoppers are placed between the top of the sash of the lower window and the pane of the upper window to prevent outside air from entering here when the unit is installed. Burglar latches are placed between the upper sash and top edge of the lower sash at either side of the window to prevent prowlers from raising the window higher.

In operation a damper lever, located under the top door of the cabinet, controls the amount of outside air admitted. This volume control regulates input at two speeds, high and low. The air is drawn into the unit over the top of the filter and through the fan blower housings. These consist of two Sirocco fans, placed one at either side of the motor. Their housings are insulated for acoustical purposes. The filtered and cleansed air enters the room through louvers in the grill work in the cabinet front which direct it up, down or straight ahead.

Wilson "spider-web" filters are supplied with the unit. The firm claims that these filters remove 97.47 per cent of the pollen from the air and 98 per cent of the dust, dirt and soot.

Electrical details are as follows: Reynolds motors are installed where units are to be used with alternating current. General Electric or Bodine motors are installed where direct current is required. On high speed the unit consumes less than 60 watts per hour. On low speed the unit consumes approximately 30 watts per hour. Alternating or direct current motors are optional. With pilot tube sets the Airvent produces over 300 C. F. M.'s. These tests were made by use of air ducts divided evenly at the ends into small spaces. Tests were made in each space and averages taken from these tests.

Another Pacific Airvent feature, according to the firm, is the recirculation filter, which cleans the room air itself. This is done by closing the outside damper entirely and then lifting the door on top of the cabinet approximately two inches. The room air is then taken into the unit, filtered, cleaned and recirculated. Whether outside or inside air is used, it is said to be propelled gently to every part of the room, thereby eliminating drafts.

In order to substantiate the claims made for the filter, tests were made by an investigator acceptable to the Council. Although the unit appeared to be well constructed, the filtering effectiveness claimed by the manufacturer was not substantiated by the Council investigator. The filter is composed of a very loose network of coarse hairs impregnated with oil. Although there are evident microscopic openings in the filter, the manufacturer seems to expect that the devious paths through the hair and oil will trap most of the pollen. The investigator was not able to duplicate the firm's figures for percentage of pollen removed. In the Council's tests an average of 88 per cent of ragweed pollen was removed by the filter. This removal of pollen, in the opinion of the Council, is insufficient to alleviate hay fever symptoms.

The advertising matter submitted with the unit contained certain unsubstantiated claims such as the statements that the unit will save fuel and freshen air contaminated by cooking odors.

In view of the foregoing report, the Council on Physical Therapy voted not to include the Pacific Airvent filter in its list of accepted devices because the filtering mechanism is not efficient for removal of pollen and the advertising matter contains certain unsubstantiated statements.

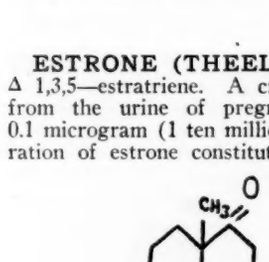
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

ESTRONE (THEELIN).—$C_{18}H_{22}O_2$.—3-hydroxy 17-keto Δ 1,3,5—estratriene. A crystalline estrogenic steroid obtained from the urine of pregnancy. The estrogenic activity of 0.1 microgram (1 ten millionth of a gram) of a standard preparation of estrone constitutes 1 international unit. The terms Estrone and Theelin are *non*proprietary synonyms.



$C_{18}H_{22}O_2$

Actions and Uses.—Estrone (theelin) is used in the treatment of symptoms of the menopause, natural or artificial, of certain other conditions related to deficiency of estrogen, and of gonorrheal vaginitis in children. See general article Ovary, New and Nonofficial Remedies, 1938, p. 333.

Dosage.—In disturbances of the menopause 0.02 mg. (200 international units) to 1.0 mg. (10,000 international units) intramuscularly one or more times a week. The smaller doses may be administered in aqueous solution, the larger in oil. Estrone may also be administered in vaginal suppositories. Beginning doses should be small to test the response of the patient and the dosage must be adjusted to the response.

For gonorrheal vaginitis in children from 0.02 to 0.2 mg. (200 to 2,000 international units) in glycerogelatin suppositories, daily or as required. This may be supplemented by intramuscular injection of small doses of the oil solution, if necessary. Changes in the secondary sex organs may be produced by this therapy, particularly if it is too prolonged. These changes usually regress on cessation of treatment.

Estrone is effective by mouth if the dosage is adequate.

Estrone occurs as a white, odorless, well defined, crystalline substance. During heating on the microscopic heating stage, characteristic rearrangement of the crystalline structure takes place at 220, 240 and 256 C. The substance melts sharply at 260 C. (± 2 degrees). Twenty mg. heated for five hours at 80 C. under vacuum of 2 mm. of mercury over phosphorus pentoxide gave no appreciable loss in weight. Practically insoluble in water; soluble in alcohol and in dioxane; also soluble in oils. Transfer approximately 0.01 Gm. of estrone accurately weighed to a 1 cc. microvolumetric flask; fill to the mark with freshly distilled dioxane and determine the optical rotation after the U. S. P. XI method, page 459, using a 2 dcm. microtube: the specific rotation $[\alpha]\frac{25}{D}$ is + 164.6 degrees (± 5 degrees).

Dissolve about 0.09 Gm. of estrone in a pyridine (6 cc.) and acetic anhydride (2 cc.) mixture (3:1) and heat at 95 C. under a micro reflux condenser for twenty-four hours. Transfer the solution to a 250 cc. flask containing 100 cc. of ice-cold water and titrate with 0.1 normal sodium hydroxide: the acetic acid value is not more than 43 nor less than 41, equivalent to one acetylated hydroxyl group. [A blank determination must be made for pyridine acetic acid and anhydride] (J. Biol. Chem. **91**: 991, 1931).

Dissolve approximately 0.05 Gm. of estrone in a pyridine (6 cc.) and acetic anhydride (2 cc.) mixture (3:1) and heat at 95 C. under a micro reflux condenser for twenty-four hours. Let stand at 37 C. for another twenty-four hours. Add 10 cc. of 50 per cent alcohol and evaporate under vacuum to a thick syrup. Add very gradually about 50 per cent alcohol (1 cc.) and set aside for crystallization. Filter the crystals and recrystallize twice from 95 per cent alcohol. The melting point of the monoacetate of theelin is 126 C.

Dissolve 0.05 Gm. of estrone and 0.05 Gm. of hydroxylamine in 10 cc. of 95 per cent alcohol; acidify with 1 cc. of concentrated acetic acid and heat under reflux for five hours. Add 10 cc. of water and recrystallize the precipitate thrice from 95 per cent alcohol. The melting point of the oxime is between 230 C. and 240 C. The micro Dumas nitrogen determination after the Pregl method gives a nitrogen content of not more than 5.2 per cent nor less than 4.6 per cent.

Transfer approximately 2 mg. of estrone, accurately weighed, to a previously weighed micro platinum boat, add 0.05 cc. of dilute sulfuric acid (1:5). Incinerate in the micro muffle oven: no residue should remain. Microcarbon and hydrogen analysis, according to Pregl's method, should give a carbon content of not more than 80.3 per cent nor less than 79.7 per cent, and a hydrogen content of not more than 8.5 per cent nor less than 7.9 per cent.

Estrone crystals exhibit a strong bluish-white fluorescence under filtered ultraviolet light.

The dosage forms of brands of estrone are biologically assayed, the assay being under control of the St. Louis University committee.

Theelin-P. D. & Co.—A brand of estrone (theelin)-N. N. R.

Manufactured by Parke, Davis & Company by license from St. Louis University under U. S. patents 1,967,350 and 1,967,351 (July 24, 1934; expire 1951). No U. S. trademark.

Ampules Theelin Aqueous, 1 cc.: Each cubic centimeter contains 0.02 mg. (200 i. u.) theelin in aqueous solution.

Ampules Theelin in Oil, 1 cc.: Each cubic centimeter contains 0.1 mg. (1,000 i. u.), 0.2 mg. (2,000 i. u.) or 1 mg. (10,000 i. u.) of theelin in a solution in peanut oil.

Vaginal Suppositories Theelin: Each suppository contains 0.2 mg. (2,000 i. u.) in a glycerogelatin base.

ESTRIOL (THEELOL.) — $C_{18}H_{24}O_3$.—3,16,17-trihydroxy Δ 1,3,5—estratriene. A crystalline estrogenic steroid isolated from the urine of pregnancy. Estriol is much less actively estrogenic than estrone. The terms Estriol and Theelol are *non*proprietary synonyms.

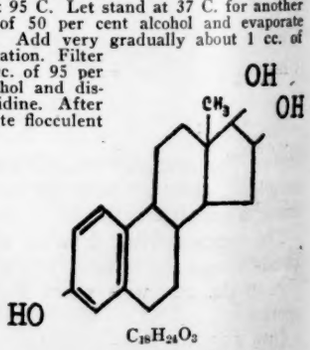
Actions and Uses.—Estriol (theelol) is used orally in the treatment of the menopause, natural or artificial, of certain other conditions related to deficiency of estrogen, and of gonorrheal vaginitis in children. See general article Ovary, New and Nonofficial Remedies, 1938, page 333.

Dosage.—Orally from 0.06 to 0.12 mg. from one to four times a day, alone or as supplement to parenteral therapy.

Estriol occurs as a white, odorless, micro cyrstalline powder. During heating on the microscopic heating stage, rearrangement of the crystal structure takes place at 270 C. and 275 C. The substance melts sharply at 282 C. (rate of heating, U. S. P. XI, 4 degrees in one minute—Kofler microscopic heating stage). Twenty mg. of estriol heated for five hours at 80 C. under vacuum of 2 mm. over phosphorus pentoxide gives no appreciable loss in weight. Practically insoluble in water; soluble in alcohol and dioxane; also soluble in oils. Transfer approximately 0.04 Gm. of estriol, accurately weighed, to a 1 cc. microvolumetric flask; fill to the mark with freshly distilled dioxane and determine the optical rotation after the U. S. P. XI method, page 459, using a 2 dcm. microtube. The specific rotation $[\alpha]\frac{25}{D}$ is + 58 degrees (± 5 degrees).

Dissolve approximately 0.06 Gm. of estriol, accurately weighed, in a pyridine (6 cc.) and acetic anhydride (2 cc.) mixture (3:1) and heat under a micro reflux condenser for twenty-four hours at 95 C. Transfer the solution to a 250 cc. flask containing 100 cc. of ice-cold water and titrate with 0.1 normal sodium hydroxide: the acetic acid value is not more than 129 nor less than 121, equivalent to three acetylated hydroxyl groups. [A blank determination must be made for pyridine acetic acid and anhydride] (J. Biol. Chem. **91**: 655, 1931).

Dissolve approximately 0.04 Gm. of theelol in a pyridine (6 cc.) and acetic anhydride (2 cc.) mixture (3:1) and heat under a micro reflux condenser for twenty-one hours at 95 C. Let stand at 37 C. for another twenty-four hours. Add 10 cc. of 50 per cent alcohol and evaporate under vacuum to a thick syrup. Add very gradually about 1 cc. of alcohol and set aside for crystallization. Filter the crystals and redissolve in 3 cc. of 95 per cent alcohol. Evaporate the alcohol and dissolve the residue in 4 cc. of pyridine. After addition of 16 cc. of water a white flocculent precipitate occurs; recrystallize twice from 90 per cent alcohol; dry the crystals in vacuum at 80 C. over phosphorus pentoxide: the melting point of the triacetate is 126 C. (± 1 degree).



$C_{18}H_{24}O_3$

Transfer approximately 2 mg. of estriol, accurately weighed, to a previously weighed micro platinum boat, add 0.05 cc. of sulfuric acid (1:5), incinerate in the muffle oven: no residue should remain. Micro carbon and hydrogen analysis, according to Pregl's method, gives a carbon content of not more than 75.2 per cent, nor less than 74.6 per cent, and a hydrogen content of not more than 8.7 per cent, nor less than 8.0 per cent.

Estriol crystals exhibit a reddish fluorescence under filtered ultraviolet light.

The dosage forms of brands of estriol are biologically assayed, the assay being under control of the St. Louis University committee.

Theelol-P. D. & Co.—A brand of estriol (theelol)-N. N. R.

Manufactured by Parke, Davis & Company by license from St. Louis University under U. S. patents 1,967,350 and 1,967,351 (July 24, 1934; expire 1951). No U. S. trademark.

Kapseals Theelol, 0.06 mg.: Each kapseal (sealed gelatin capsule) contains 0.06 mg. theelol.

Kapseals Theelol, 0.12 mg.: Each kapseal (sealed gelatin capsule) contains 0.12 mg. theelol.

SULFANILAMIDE (See New and Nonofficial Remedies, 1938, p. 450).

Sulfanilamide Tablets, 5 grains.

Prepared by Charles C. Haskell & Company, Inc., Richmond, Va. No U. S. patent or trademark.

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

THIRTY-EIGHTH ANNUAL PRESENTATION OF EDUCATIONAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The Council's preliminary report on extension courses for practicing physicians appears in this issue. Comment on the approved schools and statistical data for the academic year 1937-1938 are presented in the customary manner. Also included are revised lists of hospitals approved by the Council for internships and residencies in specialties and schools for occupational therapy, physical therapy and clinical laboratory technicians. The Essentials of an Acceptable Medical School and the Essentials of an Acceptable School of Occupational Therapy are reprinted as recently revised.

Statistics are presented covering seventy-seven medical schools [1] in the United States and ten in Canada, 729 hospitals approved for internships, 451 hospitals offering approved residencies in specialties, six schools for the study of occupational therapy, thirteen schools for physical therapy technicians and 137 schools for clinical laboratory technicians. The factual study of extension courses for practitioners covers twenty-three of the twenty-four states visited since October 1937.

These data are based on official reports. Acknowledgment is tendered the officers of the institutions mentioned and others for their ready cooperation in supplying the material submitted in this presentation as well as other data furnished throughout the year to the office of the Council and the members of its staff on inspection or visitation, enabling the Council to maintain its medical student and hospital registers efficiently and to carry on its activities as outlined by the House of Delegates of the American Medical Association.

PRELIMINARY EDUCATION

Although many medical schools have additional requirements, the minimum standard of the Council since 1918 has been two years of college, including English, theoretical and practical courses in physics and biology and in general and organic chemistry, completed in institutions approved by accrediting associations acceptable to the Council. There are six such agencies, namely:

Association of American Universities.
North Central Association of Colleges and Secondary Schools.
Middle States Association of Colleges and Secondary Schools.
New England Association of Colleges and Secondary Schools.
Southern Association of Colleges and Secondary Schools.
Northwest Association of Secondary and Higher Schools.

For the guidance of admitting officers and prospective medical students, the Council publishes annually a compilation of colleges of arts and sciences approved by these bodies. For the year 1937-1938 there were 721 institutions included in the list as follows:

Association of American Universities	286
North Central	268
Southern	186
Middle States	132
Northwest	67
New England	47

Of those recognized by the Association of American Universities, all but twenty-one are approved also by their district agency. In the various groups this dual approval of 265 institutions is distributed as indicated below:

North Central	100
Middle States	62
Southern	55
New England	31
Northwest	17

These five regional associations of colleges referred to cover among them the entire United States with the exception of the far southwestern section of the United States. Institutions in this territory can secure only the approval of the national group—the Association of American Universities.

Prospective medical students do well to secure their premedical training in colleges that are included in this list. Otherwise they may find it difficult or impossible to enter the medical school of their choice; for, while there is no inviolable rule excluding applicants from unaccredited colleges, officials, in selecting from so large a number, give the preference to those whose preparation has been received in institutions which are known to conform to accepted standards. Of students from other institutions, they exact, both qualitatively and quantitatively, a higher performance. Since success in the medical curriculum demands more than average intelligence and industry, the college student who cannot place himself in the upper third of his class should seriously question the advisability of starting on a medical career. In 1931 the Association of American Medical Colleges passed a resolution recommending the use of aptitude tests as an additional guide in the selection of students. Accordingly, the majority of schools base their decisions in part on the medical aptitude scores and in part on college grades.

The Council does not specify the courses which should be taken in secondary schools or those which should be chosen as electives in colleges. To some extent the candidate should follow his own interest but should obtain a general education which is as broad as possible.

(Continued on page 790)

TABLE 1.—*State Requirements of Preliminary Training*

Two Years of College		
Alabama	Maine	Oregon
Arizona	Maryland	Pennsylvania
Arkansas	Massachusetts	Rhode Island
Colorado	Michigan	South Carolina
Delaware	Minnesota	South Dakota
District of Columbia	Mississippi	Tennessee
Florida	Montana	Texas
Georgia	Nevada	Utah
Idaho	New Hampshire	Vermont
Illinois	New Jersey	Virginia
Indiana	New Mexico	Washington
Iowa	New York	West Virginia
Kansas	North Carolina	Wisconsin
Kentucky	North Dakota	Wyoming
Louisiana	Oklahoma	
One Year of College		
California		Connecticut
High School Graduation or Its Equivalent		
Missouri	Nebraska	Ohio

1. Includes three schools whose approval has been withdrawn and one school placed on probation. See footnotes to table 2, page 787.

TABLE 2.—*Statistics of Recognized Medical Schools in the United States and Canada*

Marginal No.	Name and Location of School	1938-1939 Premedical Requirement by Years	Length of Course, Academic Years	Students by Classes, Session 1937-1938: 1st Year	2d Year	3d Year	4th Year	5th Year or Intern Year	Total	Graduates Since July 1, 1937	Session 1938-1939: Begins 1938	Session 1938-1939: Ends 1939	Applications for Admission to the 1st Year Will Be Received Until	Executive Officer	Marginal No.
	ALABAMA														
1	University of Alabama School of Medicine, University (Tuscaloosa)	3	2	49	42	...	...	...	91	...	Sept. 15	May 30	Jan.	Stuart Graves, M.D., Dean	1
	ARKANSAS														
2	*University of Arkansas School of Medicine, Little Rock	2	4	85	62	71	80	...	298	80	Sept. 28	June 6	Sept.	Frank Vinsonhaler, M.D., Dean	2
	CALIFORNIA														
3	University of California Medical School, Berkeley-San Francisco	3	5	64	58	62	63	61‡	247	63	Aug. 22	May 20	April	Langley Porter, M.D., Dean	3
4	College of Medical Evangelists, Loma Linda-Los Angeles	2	5	92	85	95	111	111‡	384	102	Sept. 5	June 11	May	E. H. Risley, M.D., Dean, Loma Linda; W. E. Macpherson, M.D., Assoc. Dean, Los Angeles	4
5	University of Southern California School of Medicine, Los Angeles	3	5	54	48	45	43	44‡	190	43	Sept. 19	June 10	March	Paul S. McKibben, Ph.D., Dean	5
6	Stanford University School of Medicine, San Francisco	3	5	62	60	57	58	63‡	237	63	Sept. 27#	June 14	March	Loren Roscoe Chandler, M.D., Dean	6
	COLORADO														
7	University of Colorado School of Medicine, Denver	3	4	59	49	50	49	...	207	49	Sept. 26	June 12	April	Maurice H. Rees, M.D., Dean	7
	CONNECTICUT														
8	Yale University School of Medicine, New Haven	3	4	54	54	45	37	...	190	40	Sept. 26	June 14	March	Stanhope Bayne-Jones, M.D., Dean	8
	DISTRICT OF COLUMBIA														
9	Georgetown University School of Medicine, Washington	3	4	90	80	73	107	...	350	107	Sept. 19	June 12	March	David V. McCauley, S.J., Ph.D., Dean	9
10	George Washington University School of Medicine, Washington	2	4	69	55	57	68	...	249	68	Sept. 28	June 14	Sept.	Earl B. McKinley, M.D., Dean	10
11	Howard University College of Medicine, Washington	2	4	36	37	35	23	...	131	22	Sept. 26	June 9	Sept.	Numa P. G. Adams, M.D., Dean	11
	GEORGIA														
12	Emory University School of Medicine, Atlanta	3	4	63	51	46	60	...	220	60	Sept. 26	June 5	.....	Russell H. Oppenheimer, M.D., Dean	12
13	University of Georgia School of Medicine, Augusta	3	4	49	38	30	34	...	151	34	Sept. 26	June 12	June	G. Lombard Kelly, M.D., Dean	13
	ILLINOIS														
14	Loyola University School of Medicine, Chicago	3	5	71	102	120	110	117‡	403	115	Sept. 6	June 15	Sept.	Louis D. Moorhead, M.D., Dean	14
15	Northwestern University Medical School, Chicago	3	5	129	121	155	153	153‡	558	141	Sept. 27#	June 10	April	Irving S. Cutter, M.D., Dean	15
16	University of Chicago, Rush Medical College	3	4	...	...	...	...	...	262†	168	Oct. 3	June 13	April	Emmet B. Bay, M.D., Associate Dean	16
17	University of Chicago, The School of Medicine of the Division of Biological Sciences	3	4	...	...	...	...	...	287†	52	Oct. 3	June 14	Feb.	B. C. H. Harvey, M.D., Dean of Students	17
18	University of Illinois College of Medicine, Chicago	3	5	154	158	165	157	166‡	634	150	Sept. 26	June 9	July	David J. Davis, M.D., Dean	18
	INDIANA														
19	Indiana University School of Medicine, Bloomington-Indianapolis	3	4	121	111	103	94	...	429	87	Sept. 17	June 5	June	Burton D. Myers, M.D., Dean, Bloomington; Willis D. Gatch, M.D., Dean, Indianapolis	19
	IOWA														
20	State University of Iowa College of Medicine, Iowa City	3	4	104	93	88	84	...	369	83	Sept. 26	June 5	July	Ewen Murchison MacEwen, M.D., Dean	20
	KANSAS														
21	University of Kansas School of Medicine, Lawrence-Kansas City	2	4	77	75	70	67	...	289	67	Sept. 22#	June 12	June	H. R. Wahl, M.D., Dean	21
	KENTUCKY														
22	University of Louisville School of Medicine, Louisville	2	4	87	76	87	92	...	342	93	Sept. 15	June 3	April	John Walker Moore, M.D., Dean	22
	LOUISIANA														
23	Louisiana State University Medical Center, New Orleans	3	5	101	81	64	61	56‡	307	55	Sept. 5	May 27	.....	Rigney D'Aunoy, M.D., Dean	23
24	Tulane University of Louisiana School of Medicine, New Orleans	2	4	136	106	109	117	...	468	113	Sept. 23	June 7	March	Charles C. Bass, M.D., Dean	24
	MARYLAND														
25	Johns Hopkins University School of Medicine, Baltimore	Degree	4	68	64	74	75	...	281	76	Sept. 27	June 6	June	Alan M. Chesney, M.D., Dean	25
26	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore	3	4	91	89	93	100	...	373	102	Sept. 22	June 3	.....	J. M. H. Rowland, M.D., Dean	26
	MASSACHUSETTS														
27	Boston University School of Medicine, Boston	3	4	50	53	49	47	...	199	43	Sept. 22	June 12	May	Alexander S. Begg, M.D., Dean	27
28	Harvard University Medical School, Boston	2	4	125	127	133	135	...	520	135	Sept. 26	June 22	March	Charles Sidney Burwell, M.D., Dean	28
29	Tufts College Medical School, Boston	Degree	4	100	96	110	113	...	419	109	Sept. 21	June 19	April	A. Warren Stearns, M.D., Dean	29
	MICHIGAN														
30	University of Michigan Medical School, Ann Arbor	3	4	137	134	102	108	...	481	102	Sept. 26	June 17	March	A. C. Furstenberg, M.D., Dean	30
31	Wayne University College of Medicine, Detroit	3&Degree	5	63	62	60	75	78‡	260	78	Sept. 19	June 17	May	Raymond B. Allen, M.D., Dean	31
	MINNESOTA														
32	University of Minnesota Medical School, Minneapolis	2	5	118	127	128	96	98‡	469	117	Sept. 26#	June 17	July	Harold S. Diehl, M.D., Dean	32
	MISSISSIPPI														
33	Univessity of Mississippi School of Medicine, University	3	2	20	14	...	...	...	34	...	Sept. 19	June 5	Sept.	B. S. Guyton, M.D., Dean	33
	MISSOURI														
34	University of Missouri School of Medicine, Columbia	3	2	44	35	...	...	...	79	...	Sept. 12	June 6	June	Dudley S. Conley, M.D., Dean	34
35	St. Louis University School of Medicine, St. Louis	3	4	119	113	116	113	...	461	103	Sept. 20	June 1	Sept.	Alphonse M. Schwitalla, S.J., Ph.D., Dean	35
36	Washington University School of Medicine, St. Louis	4	4	82	75	94	97	...	348	96	Sept. 22	June 6	Sept.	Philip A. Shaffer, Ph.D., Dean	36
	NEBRASKA														
37	Creighton University School of Medicine, Omaha	2	4	75	60	57	70	...	262	68	Sept. 20	June 1	.....	Bryan M. Riley, M.D., Dean	37
38	University of Nebraska College of Medicine, Omaha	3	4	93	81	71	74	...	319	75	Sept. 19	June 6	June	C. W. M. Poynter, M.D., Dean	38
	NEW HAMPSHIRE														
39	Dartmouth Medical School, Hanover	3	2	20	18	...	...	...	38	...	Sept. 22	June 16	Feb.	John P. Bowler, M.D., Dean	39
	NEW YORK														
40	Albany Medical College, Albany														
41	Long Island College of Medicine, Brooklyn	Degree	4	35	27	23	25								

39	Dartmouth Medical School, Hanover														39
	NEW YORK														
40	Albany Medical College, Albany	Degree	4	35	27	23	25	...	110	25	Sept. 26	June 12	July	R. S. Cunningham, M.D., Dean	40
41	Long Island College of Medicine, Brooklyn	2½	4	96	85	91	89	...	361	88	Sept. 26	June 10	Sept.	Jean A. Curran, M.D., Dean	41
42	University of Buffalo School of Medicine, Buffalo	2	4	70	61	70	57	...	258	58	Oct. 3	June 10	Sept.	Edward W. Koch, M.D., Dean	42
43	Cornell University Medical College, New York-Ithaca	3&Degree	4	77	76	63	67	...	283	66	Sept. 21	June 7	.....	William S. Ladd, M.D., Dean	43
44	Columbia University College of Physicians and Surgeons, New York	3	4	113	104	97	91	...	405	90	Sept. 22	June 6	Nov.	Willard C. Rappleye, M.D., Dean	44
45	New York Medical College and Flower Hospital, New York	Degree	4	87	59	64	58	...	268	57	Sept. 19	June 6	Aug.	Claude A. Burrett, M.D., Dean	45
46	New York University College of Medicine, New York	3&Degree	4	138	120	121	117	...	496	124	Sept. 14	June 7	Jan.	Currier McEwen, M.D., Dean	46
47	University of Rochester Sshool of Medicine, Rochester	3	4	49	46	43	39	...	177	39	Sept. 19	June 17	March	George Hoyt Whipple, M.D., Dean	47
48	Syracuse University College of Medicine, Syracuse	3	4	49	44	47	36	...	176	36	Sept. 22	June 5	.....	H. G. Weiskotten, M.D., Dean	48
	NORTH CAROLINA														
49	University of North Carolina School of Medicine, Chapel Hill	3	2	36	29	...	...	...	65	...	Sept. 15	June 6	Sept.	William deB. MacNider, M.D., Dean	49
50	Duke University School of Medicine, Durham	2½	4	71	62	60	58	48‡	252	47	Sept. 29	June 5	.....	Wilburt C. Davison, M.D., Dean	50
51	Wake Forest College School of Medical Sciences, Wake Forest	3	2	22	19	...	...	...	41	...	Sept. 14	May 30	June	C. C. Carpenter, M.D., Dean	51
	NORTH DAKOTA														
52	**University of North Dakota School of Medicine, Grand Forks	3	2	24	24	...	...	...	48	...	Sept. 19	June 6	Sept.	H. E. French, M.D., Dean	52
	OHIO														
53	University of Cincinnati College of Medicine, Cincinnati	3	5	78	73	68	75	69‡	294	72	Sept. 23	June 9	April	Alfred Friedlander, M.D., Dean	53
54	Western Reserve University School of Medicine, Cleveland	3&Degree	4	77	65	64	64	...	270	63	Sept. 22	June 14	Sept.	Torald Sollmann, M.D., Dean	54
55	Ohio State University College of Medicine, Columbus	3	4	80	78	81	92	...	331	92	Oct. 4	June 12	June	J. H. J. Upham, M.D., Dean	55
	OKLAHOMA														
56	University of Oklahoma School of Medicine, Oklahoma City	2	4	64	55	51	53	...	223	52	Sept. 19	June 5	Sept.	Robert U. Patterson, M.D., Dean	56
	OREGON														
57	University of Oregon Medical School, Portland	3	4	70	61	66	56	...	253	55	Oct. 3	June 3	July	Richard B. Dillehunt, M.D., Dean	57
	PENNSYLVANIA														
58	Hahnemann Medical College and Hospital of Philadelphia	2	4	149	131	139	129	...	548	129	Oct. 3	June 15	Oct.	William A. Pearson, M.D., Dean	58
59	Jefferson Medical College of Philadelphia	Degree	4	125	116	123	134	...	498	134	Sept. 20	June 2	Sept.	Henry K. Mohler, M.D., Dean	59
60	Temple University School of Medicine, Philadelphia	3	4	111	96	120	114	...	441	113	Sept. 21	June 15	Sept.	William N. Parkinson, M.D., Dean	60
61	University of Pennsylvania School of Medicine, Philadelphia	3	4	120	113	127	140	...	500	139	Sept. 26	June 14	March	William Pepper, M.D., Dean	61
62	Woman's Medical College of Pennsylvania, Philadelphia	3	4	31	26	21	28	...	106	25	Sept. 21	June 14	Aug.	Martha Tracy, M.D., Dean	62
63	University of Pittsburgh School of Medicine, Pittsburgh	2	4	64	48	55	63	...	230	61	Sept. 19	June 14	March	W. S. McEllroy, M.D., Acting Dean	63
	SOUTH CAROLINA														
64	Medical College of the State of South Carolina, Charleston	3	4	42	36	44	42	...	164	42	Sept. 22	June 1	May	Robert Wilson, M.D., Dean	64
	SOUTH DAKOTA														
65	**University of South Dakota School of Medical Sciences, Vermilion	3	2	17	14	...	...	...	31	...	Sept. 14	June 5	July	Joseph C. Ohlmacher, M.D., Dean	65
	TENNESSEE														
66	University of Tennessee College of Medicine, Memphis	2	4	133	99	99	106	...	437	105	July 6#	June 10	.....	O. W. Hyman, Ph.D., Dean	66
67	***Meharry Medical College, Nashville	2	4	79	57	35	35	...	206	35	Oct. 1	June 2	Sept.	Edward L. Turner, M.D., Dean	67
68	Vanderbilt University School of Medicine, Nashville	3&Degree	4	51	51	49	48	...	199	48	Sept. 27	June 14	.....	Waller S. Leathers, M.D., Dean	68
	TEXAS														
69	Baylor University College of Medicine, Dallas	2	4	83	75	71	73	...	302	73	Oct. 1	June 5	July	W. H. Moursund, M.D., Dean	69
70	University of Texas School of Medicine, Galveston	3	4	103	96	91	81	...	371	80	Oct. 1	May 31	June	W. S. Carter, M.D., Dean	70
	UTAH														
71	University of Utah School of Medicine, Salt Lake City	3	2	30	28	...	...	...	58	...	Sept. 26	June 2	Feb.	L. L. Daines, M.D., Dean	71
	VERMONT														
72	University of Vermont College of Medicine, Burlington	2	4	32	35	38	39	...	144	38	Sept. 16	June 12	July	E. H. Buttles, M.D., Chairman, Committee of Administration	72
	VIRGINIA														
73	University of Virginia Department of Medicine, Charlottesville	2	4	71	63	57	56	...	247	56	Sept. 15	June 12	.....	J. Carroll Flippin, M.D., Dean	73
74	Medical College of Virginia, Richmond	3	4	82	65	72	76	...	295	76	Sept. 6	June 6	.....	Lee E. Sutton, Jr., M.D., Dean	74
	WEST VIRGINIA														
75	West Virginia University School of Medicine, Morgantown	3	2	27	14	...	...	...	41	...	Sept. 13	June 3	Sept.	Edward J. Van Liere, M.D., Dean	75
	WISCONSIN														
76	University of Wisconsin Medical School, Madison	3	4	94	99	52	53	...	298	52	Sept. 21	June 19	March	William S. Middleton, M.D., Dean	76
77	Marquette University School of Medicine, Milwaukee	3	5	99	84	70	71	68‡	324	65	Sept. 26	June 14	.....	Eben J. Carey, M.D., Dean	77
	CANADA														
78	University of Alberta Faculty of Medicine, Edmonton, Alta	1	6	30	45	41	38	36§	221	31	Sept. 27	April 30	Sept.	Allan C. Rankin, M.D., Dean	78
79	University of Manitoba Faculty of Medicine, Halifax, N. S.	2	5	59	56	50	57	50‡	222	49	Sept. 16	May 18	April	A. T. Mathers, M.D., Dean	79
80	Dalhousie University Faculty of Medicine, Halifax, N. S.	2	5	50	52	39	37	33‡	178	32	Sept. 13	May 16	.....	H. G. Grant, M.D., Dean	80
81	Queen's University Faculty of Medicine, Kingston, Ont	1	6	44	48	44	56	48§	292	54	Sept. 29	May 24	Aug.	Frederick Etherington, M.D., Dean	81
82	University of Western Ontario Medical School, London, Ont	1	6	44	40	32	30	32§	212	33	Sept. 19	May 13	Sept.	F. J. H. Campbell, M.D., Dean	82
83	University of Toronto Faculty of Medicine, Toronto, Ont	1	6	143	137	144	138	136§	811	119	Sept. 27	May 13	Sept.	W. E. Gallie, M.D., Dean	83
84	McGill University Faculty of Medicine, Montreal, Que	3	5	105	94	80	101	97	477	97	Sept. 1	June 1	March	A. Grant Fleming, M.D., Dean	84
85	University of Montreal Faculty of Medicine, Montreal, Que	1	5	46	65	50	26	40‡	187	41	Sept. 15	June 15	Sept.	Albert Le Sage, M.D., Dean	85
86	Laval University Faculty of Medicine, Quebec, Que	Degree	5	93	67	62	42	43	307	41	Sept. 20	May 31	Aug.	P. C. Dagneau, M.D., Dean	86
87	University of Saskatchewan School of Medical Sciences, Saskatoon, Sask.	2	2	24	23	...	...	...	47	...	Sept. 26	May 12	Aug.	W. S. Lindsay, M.B., Dean	87

* Approval withdrawn June 11, 1938, without prejudice to the students then enrolled. This protection was also extended to the entering class of 1938-1939.

** Approval withdrawn Oct. 11, 1936, without prejudice to the students then enrolled. On June 6, 1937, protection was extended to students who may be enrolled in the first year class in 1937-1938. On February 13, 1938, this protection was extended to the entering class of 1938-1939.

*** On probation from June 6, 1937.

† Enrolment not on above table by classes for the two medical schools of the University of Chicago.

‡ Fifth year (internship) enrolment not included in the total column.

§ Sixth year enrolment: Alberta, 31; Queen's, 52; Western Ontario, 34; Toronto, 113.

#Students admitted at different times of the year: Stanford, second year January 3; Northwestern, beginning of any quarter; Kansas, February 6, 1939; Minnesota, January 5; Tennessee, Sept. 22. Dec. 30, 1938 and March 20, 1939.

TABLE 3.—*Birth*

Marginal Number	Name of School	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Marginal Number
1	University of Alabama School of Medicine	53	..	..	..	..	..	..	..	..	1	..	..	1	..	..	1	..	1	..	4	1	1
2	University of Arkansas School of Medicine	5	..	172	1	..	..	1	..	..	1	..	3	4	1	5	2	4	..	..	2	..	2
3	University of California Medical School	2	3	..	128	3	1	..	1	..	..	1	6	3	2	1	..	1	..	1	1	5	3
4	College of Medical Evangelists	2	4	2	89	9	..	..	3	4	3	6	8	8	8	5	1	..	2	11	6	17	4
5	Univ. of Southern California School of Medicine	..	5	1	65	4	2	..	..	..	1	..	7	5	8	2	..	1	..	..	1	6	5
6	Stanford University School of Medicine	..	2	..	111	1	1	..	1	..	..	3	10	4	5	3	..	..	..	4	1	2	6
7	University of Colorado School of Medicine	..	2	..	6	108	1	..	..	..	..	1	3	3	4	6	..	1	..	..	2	4	7
8	Yale University School of Medicine	1	..	1	4	2	43	..	..	2	..	..	2	..	..	1	2	..	3	2	25	1	8
9	Georgetown University School of Medicine	..	..	..	6	..	8	1	21	..	..	..	2	..	1	1	..	..	3	5	29	4	9
10	George Washington Univ. School of Medicine	1	1	1	5	1	1	..	57	..	3	5	7	1	3	..	1	..	3	11	10	2	10
11	Howard University College of Medicine	1	1	3	..	1	2	1	13	1	5	..	2	2	..	..	1	1	1	10	1	1	11
12	Emory University School of Medicine	16	..	..	..	..	..	..	..	25	142	..	..	..	..	..	1	..	..	..	..	..	12
13	University of Georgia School of Medicine	2	..	..	..	..	..	..	..	1	130	..	..	1	..	..	..	..	..	..	..	1	13
14	Loyola University School of Medicine	..	1	..	4	1	3	..	..	1	..	2	255	13	4	..	..	..	..	..	2	15	14
15	Northwestern University Medical School	4	2	3	17	4	1	1	..	3	2	16	166	11	12	16	4	1	..	3	1	23	15
16	University of Chicago, Rush Medical College	3	..	1	6	2	1	..	..	..	..	5	55	2	12	3	1	..	..	..	9	8	16
17	Univ. of Chicago, Div. of Biological Sciences	2	..	..	15	3	..	..	1	2	1	4	123	8	7	7	1	1	1	..	2	14	17
18	University of Illinois College of Medicine	..	..	..	2	..	..	..	..	..	1	1	510	8	6	1	4	..	..	..	5	3	18
19	Indiana University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	5	396	..	1	..	..	..	..	..	..	19
20	State University of Iowa College of Medicine	..	..	..	1	2	..	..	..	1	..	..	13	..	292	3	1	..	..	..	..	3	20
21	University of Kansas School of Medicine	..	..	1	2	4	..	..	1	..	..	..	6	1	3	185	1	1	..	..	..	2	21
22	University of Louisville School of Medicine	2	..	..	4	1	2	..	..	2	1	3	11	22	..	1	152	..	..	..	1	2	22
23	Louisiana State University Medical Center	10	..	5	..	..	2	..	..	4	3	1	..	2	..	2	2	177	..	..	4	1	23
24	Tulane Univ. of Louisiana School of Medicine	51	4	13	1	1	..	..	1	37	14	..	2	..	..	2	7	116	..	1	1	1	24
25	Johns Hopkins University School of Medicine	6	2	..	9	1	3	..	3	2	6	..	10	4	2	3	4	1	3	46	8	5	25
26	University of Maryland School of Medicine	1	..	..	3	2	9	3	3	2	4	..	2	1	1	..	1	..	..	169	2	..	26
27	Boston University School of Medicine	..	..	..	1	..	9	..	..	1	..	..	..	..	..	..	1	..	16	..	128	..	27
28	Harvard University Medical School	2	1	1	14	5	14	..	4	1	8	1	21	6	8	6	4	2	8	5	114	11	28
29	Tufts College Medical School	..	..	..	1	..	19	..	..	..	1	..	2	..	1	..	..	..	18	..	278	..	29
30	University of Michigan Medical School	2	1	..	4	1	3	..	..	..	3	1	12	17	5	3	4	..	1	..	11	244	30
31	Wayne University College of Medicine	1	..	..	2	1	2	..	..	1	..	..	6	5	3	..	1	..	1	1	5	132	31
32	University of Minnesota Medical School	..	..	..	2	..	..	..	..	..	..	..	..	2	2	2	1	..	..	..	3	1	32
33	University of Mississippi School of Medicine	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33
34	University of Missouri School of Medicine	1	..	3	1	1	..	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	34
35	St. Louis University School of Medicine	1	1	1	13	3	4	..	..	..	1	3	63	14	8	9	4	..	1	..	7	9	35
36	Washington University School of Medicine	5	3	3	15	4	..	..	..	1	1	4	40	4	7	20	6	..	..	1	4	4	36
37	Creighton University School of Medicine	..	2	..	61	1	..	..	..	..	..	2	4	2	15	15	..	..	..	..	..	1	37
38	University of Nebraska College of Medicine	..	..	..	1	4	..	..	..	..	..	1	5	..	17	7	..	..	..	..	2	2	38
39	Dartmouth Medical School	..	..	..	..	..	3	..	..	..	..	1	1	..	..	1	..	..	1	..	8	1	39
40	Albany Medical College	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	3	..	6	..	40
41	Long Island College of Medicine	3	..	..	1	..	11	..	..	..	..	..	1	..	1	..	..	..	..	..	4	1	41
42	University of Buffalo School of Medicine	..	..	..	..	..	2	..	..	..	..	..	3	..	..	..	1	1	1	..	6	1	42
43	Columbia Univ. College of Physicians and Surgs.	3	1	1	3	3	16	1	4	..	2	1	10	3	1	5	1	..	4	2	23	3	43
44	Cornell University Medical College	2	1	1	2	1	10	..	..	2	2	1	..	1	..	1	3	..	..	..	13	..	44
45	New York Medical College	..	..	..	3	..	19	..	..	..	..	..	..	..	..	..	..	..	..	..	4	2	45
46	New York University College of Medicine	1	..	..	1	1	8	..	..	..	..	..	4	1	..	1	..	..	2	2	10	..	46
47	University of Rochester School of Medicine	..	..	..	9	..	6	1	1	..	1	1	3	1	1	..	1	..	1	..	12	3	47
48	Syracuse University College of Medicine	..	..	..	..	..	2	..	..	..	..	1	1	..	2	..	..	..	1	..	1	..	48
49	University of North Carolina School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
50	Duke University School of Medicine	8	..	..	5	..	5	1	6	9	10	..	4	2	4	..	..	1	1	8	5	5	50
51	Wake Forest College School of Medical Sciences	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	51
52	University of North Dakota School of Medicine	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	52
53	University of Cincinnati College of Medicine	1	..	..	..	1	..	..	1	1	..	1	1	12	1	1	22	..	..	1	3	4	53
54	Western Reserve University School of Medicine	..	..	..	3	1	2	..	..	1	..	1	6	5	1	..	1	..	..	..	2	6	54
55	Ohio State University College of Medicine	1	..	..	..	1	1	..	..	..	1	..	6	4	..	1	3	1	..	..	2	2	55
56	University of Oklahoma School of Medicine	3	..	9	2	1	..	..	..	..	..	..	4	1	3	11	..	1	..	..	1	..	56
57	University of Oregon Medical School	..	1	..	5	..	1	..	..	..	..	16	4	2	4	1	..	..	..	..	1	..	57
58	Hahnemann Medical College	1	..	1	..	..	8	8	1	..	1	..	5	4	1	1	..	1	2	1	15	2	58
59	Jefferson Medical College of Philadelphia	..	..	..	2	..	5	12	4	2	3	2	2	2	..	3	..	..	3	3	10	4	59
60	Temple University School of Medicine	1	1	..	2	..	4	3	..	4	3	..	2	1	1	1	1	..	1	4	1	1	60
61	University of Pennsylvania School of Medicine	3	..	..	4	2	..	1	4	..	1	..	2	1	2	5	2	..	7	2	13	..	61
62	Woman's Medical College of Pennsylvania	..	1	..	..	..	3	1	..	..	..	1	4	..	..	..	1	..	..	..	2	1	62
63	University of Pittsburgh School of Medicine	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	63
64	Medical College of the State of South Carolina	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64
65	Univ. of South Dakota School of Medical Sciences	..	..	..	..	1	..	..	..	..	..	..	5	..	4	..	1	..	..	..	..	..	65
66	University of Tennessee College of Medicine	19	..	13	5	..	..	..	1	6	2	1	8	2	2	4	28	1	1	..	2	..	66
67	Meharry Medical College	5	..	3	2	..	..	..	11	11	11	..	6	1	..	1	2	12	1	5	1	4	67
68	Vanderbilt University School of Medicine	14	..	4	..	..	..	..	..	4	5	..	3	1	1	1	30	1	..	1	..	4	68
69	Baylor University College of Medicine	5	..	2	1	1	1	..	..	..	1	..	5	1	..	3	3	8	..	..	1	1	69
70	University of Texas School of Medicine	1	..	4	..	2	1	..	1	..	3	..	..	1	1	4	..	5	..	..	..	..	70
71	University of Utah School of Medicine	..	1	..	1	..	..	..	..	..	..	11	..	..	..	1	..	..	..	..	..	..	71
72	University of Vermont College of Medicine	..	..	..	1	..	8	1	..	..	..	..	..	..	..	..	..	..	2	..	11	..	72
73	University of Virginia Department of Medicine	4	..	..	..	..	2	1	2	..	2	..	..	..	..	..	3	..	1	6	2	..	73
74	Medical College of Virginia	2	..	..	3	..	2	1	4	..	3	1	1	..	2	..	3	..	..	5	3	..	74
75	West Virginia University School of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	75
76	University of Wisconsin Medical School	1	..	..	2	..	..	..	1	..	1	1	17	3	3	1	1	..	..	..	2	5	76
77	Marquette University School of Medicine	..	..	..	12	..	2	1	1	..	..	1	11	3	5	..	..	..	..	..	2	24	77
78	University of Alberta Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	78
79	University of Manitoba Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	79
80	Dalhousie University Faculty of Medicine	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	4	2	80
81	Queen's University Faculty of Medicine	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	81
82	University of Western Ontario Medical School	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	82
83	University of Toronto Faculty of Medicine	..	..	..	2	..	1	..	1	..	..	..	..	..	2	1	..	..	..	1	1	..	83
84	McGill University Faculty of Medicine	..	..	..	30	1	5	..	..	..	..	1	3	..	..	..	..	..	4	2	21	4	84
85	University of Montreal Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	85
86	Laval University Faculty of Medicine	..	..	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	3	..	6	..	86
87	Univ. of Saskatchewan School of Med. Sciences	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	87
	Total	253	41	250	697	186	267	41	152	132	385	102	1488	602	480	361	318	339	105	313	871	606	

Place of Students

Marginal Number	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Canada	Foreign	Totals	Marginal Number
1	1	..	..	1	..	..	..	7	..	6	2	..	4	..	..	1	1	1	..	..	..	..	..	2	1	1	..	..	..	..	1	91	1
2	1	3	11	..	..	..	..	9	2	31	..	..	1	13	..	2	1	1	..	5	11	..	..	..	1	1	1	..	..	1	2	298	2
3	5	..	5	1	3	..	..	6	..	14	..	..	3	2	6	7	..	..	..	..	1	5	..	1	4	..	1	..	3	4	17	247	3
4	8	..	6	6	6	2	..	2	1	15	2	1	8	5	10	9	..	..	5	4	2	..	..	3	24	1	7	..	9	18	42	384	4
5	1	1	7	8	5	1	..	1	1	10	..	3	6	..	3	6	1	..	3	..	1	2	..	2	2	..	3	1	2	4	8	190	5
6	1	..	1	3	2	3	1	2	2	9	..	1	3	2	6	4	..	..	1	..	4	10	1	..	12	..	..	1	5	4	11	237	6
7	2	..	10	1	6	1	..	2	3	5	..	..	2	3	2	6	..	1	1	..	3	5	..	..	..	..	2	3	3	..	5	207	7
8	2	..	1	1	..	..	3	12	1	35	2	..	10	..	..	8	4	..	1	..	..	..	..	..	5	3	..	..	..	4	9	190	8
9	..	..	1	..	..	..	4	49	..	133	3	..	3	..	..	40	8	..	1	..	..	1	..	4	2	2	..	..	7	1	10	350	9
10	2	..	1	1	1	..	1	12	..	33	2	..	6	..	..	27	1	2	2	3	..	11	1	10	3	2	1	1	3	1	9	249	10
11	..	2	1	..	1	..	..	11	..	18	6	..	1	..	..	14	..	1	..	..	2	..	..	8	1	..	..	..	3	..	15	131	11
12	..	1	..	..	..	..	1	3	..	8	8	..	1	..	..	..	..	10	..	2	..	..	..	..	..	1	..	..	..	..	1	220	12
13	..	1	1	..	..	..	..	..	..	2	3	..	..	..	..	1	..	2	..	1	2	..	..	..	..	..	1	..	..	..	2	151	13
14	3	..	1	1	..	..	..	17	..	25	..	..	31	..	1	10	..	..	..	..	1	..	..	1	..	..	4	..	6	..	1	403	14
15	20	1	17	14	12	1	..	7	1	8	..	17	18	2	3	16	..	..	19	2	2	11	..	1	37	7	32	3	3	5	9	558	15
16	12	2	5	2	2	1	2	7	..	10	1	14	7	1	..	6	..	..	17	..	1	16	..	1	8	7	14	..	2	4	12	262	16
17	6	..	5	1	5	..	..	2	1	12	..	6	11	1	1	6	1	1	2	1	..	6	..	..	8	3	9	..	6	..	1	287	17
18	3	2	4	..	2	..	..	2	..	17	1	1	6	1	1	5	1	..	2	..	..	..	..	..	2	..	1	1	..	6	35	634	18
19	..	..	..	1	..	..	..	4	..	7	1	1	5	..	..	2	..	..	..	1	..	..	..	..	..	1	1	..	..	1	2	429	19
20	3	1	4	2	6	..	..	1	..	6	..	1	3	..	1	3	..	..	2	1	2	..	..	1	2	1	1	..	..	..	12	369	20
21	3	..	51	..	6	..	..	..	..	1	..	..	3	8	..	..	..	..	1	..	3	..	..	..	1	1	1	..	..	..	3	289	21
22	1	5	8	..	1	..	..	8	1	31	3	1	26	2	1	6	1	2	1	3	1	4	1	..	5	10	9	1	2	1	3	342	22
23	1	12	1	..	1	..	..	4	1	37	..	2	1	1	..	1	..	4	..	4	13	3	..	..	1	..	..	..	1	1	5	307	23
24	..	57	4	..	..	1	..	10	2	13	11	..	..	13	..	3	..	10	..	5	53	1	..	1	2	2	2	1	13	..	12	468	24
25	3	1	6	1	1	..	1	17	..	32	9	2	15	2	1	35	2	3	..	3	2	3	..	5	1	3	3	..	..	2	10	281	25
26	..	1	..	..	..	..	..	19	..	46	14	..	3	..	..	31	2	3	1	2	..	2	..	7	..	24	..	..	14	..	1	373	26
27	..	..	..	..	..	..	12	..	..	19	..	..	1	..	..	..	7	..	..	..	..	..	..	..	1	..	1	..	1	..	1	199	27
28	8	..	12	3	3	..	7	16	..	68	13	1	27	1	7	22	13	2	1	3	9	5	5	5	9	7	4	..	7	3	23	520	28
29	..	..	1	1	..	..	14	6	..	24	..	..	..	..	..	7	21	1	1	..	..	..	4	..	..	..	..	..	2	2	15	419	29
30	3	1	1	5	1	..	..	13	..	34	1	3	38	2	1	12	2	..	..	2	3	2	1	2	8	1	5	1	4	8	15	481	30
31	3	..	5	..	..	..	1	7	..	23	..	1	17	..	..	8	..	..	..	2	..	..	..	1	1	1	1	..	..	13	15	260	31
32	407	..	1	9	..	..	..	3	..	6	..	6	..	1	..	..	..	..	8	..	..	..	..	..	3	..	9	..	2	..	1	469	32
33	..	32	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34	33
34	..	..	61	..	..	..	..	1	..	1	..	..	..	2	1	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	79	34
35	4	1	82	12	1	1	..	16	1	70	..	..	51	5	1	25	4	..	..	..	8	3	..	..	10	1	5	..	4	4	10	461	35
36	1	2	112	2	2	1	1	4	1	17	3	1	10	7	2	3	..	..	4	3	4	10	..	3	8	5	4	..	4	3	9	348	36
37	8	..	6	4	51	..	..	5	..	24	..	3	13	4	3	2	..	..	13	..	..	6	..	..	9	..	1	4	2	1	..	262	37
38	5	1	6	2	236	..	..	..	..	3	..	..	..	3	..	..	..	..	9	..	2	2	..	..	1	..	1	3	..	3	3	319	38
39	1	..	1	1	..	..	5	4	..	8	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	38	39
40	..	1	1	..	..	..	4	4	..	79	..	..	1	..	..	2	2	..	1	..	..	..	1	..	..	..	..	..	..	..	3	110	40
41	..	..	..	..	..	..	..	22	..	281	1	..	2	..	..	11	..	..	..	..	..	..	1	1	..	..	1	..	..	..	19	361	41
42	..	..	1	..	..	..	..	4	..	207	..	..	7	..	..	11	2	..	..	..	..	..	..	1	..	..	..	..	..	3	7	258	42
43	2	..	3	1	1	..	2	55	..	191	2	..	12	..	2	12	1	..	..	2	2	1	1	1	4	1	3	..	3	1	15	405	43
44	..	1	2	..	..	..	1	40	..	170	2	..	4	1	..	13	1	1	2	..	..	2	2	..	..	..	..	1	..	..	..	283	44
45	..	..	..	..	..	..	..	35	..	190	..	..	7	..	..	5	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	268	45
46	..	..	6	..	1	..	..	56	..	358	3	..	4	1	..	8	1	..	..	..	..	2	1	1	..	..	..	..	..	2	21	496	46
47	..	..	2	..	..	..	..	6	..	91	1	1	14	1	..	7	1	..	..	..	..	1	4	1	1	..	..	..	..	1	4	177	47
48	..	..	..	1	..	..	1	9	..	137	..	..	1	..	..	8	3	..	..	..	..	..	..	1	..	..	..	..	1	1	5	176	48
49	..	..	..	..	..	..	..	3	..	3	54	..	..	..	..	2	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	65	49
50	2	..	..	2	2	..	1	17	..	21	54	1	7	7	2	19	..	9	1	2	2	2	1	4	6	11	..	..	1	1	3	252	50
51	..	..	..	..	..	..	..	..	..	..	35	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	41	51
52	6	..	..	..	..	..	..	..	..	..	..	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	48	52
53	1	..	3	1	..	..	..	3	..	16	1	..	194	..	..	8	..	..	2	1	..	..	..	..	1	6	1	..	..	..	6	294	53
54	..	..	..	1	..	..	..	2	..	13	..	..	176	..	..	24	2	..	2	..	1	..	..	..	..	7	1	..	2	1	9	270	54
55	..	..	3	..	2	..	..	..	..	12	..	..	257	1	..	10	..	1	..	..	1	..	..	1	..	6	1	..	2	1	10	331	55
56	2	..	11	..	2	..	..	..	2	3	..	..	2	142	..	2	..	..	..	3	16	..	..	..	..	1	..	..	..	..	1	223	56
57	4	..	3	10	5	..	..	..	2	2	..	3	1	1	103	1	..	..	3	..	2	4	..	..	59	..	1	2	2	3	7	253	57
58	1	..	6	..	..	..	2	67	..	72	2	..	19	..	..	273	5	..	..	..	1	..	1	..	1	3	3	..	16	1	23	548	58
59	..	1	2	1	..	..	1	56	2	17	18	..	13	..	..	287	14	2	..	1	..	3	..	2	1	9	..	1	8	..	2	498	59
60	2	..	6	..	..	..	..	38	..	25	12	4	6	..	..	288	..	2	..	1	1	2	..	3	..	7	..	..	3	1	9	441	60
61	3	..	7	1	3	2	..	33	1	15	15	3	19	1	1	289	1	4	..	5	3	6	..	5	3	4	8	..	2	3	14	500	61
62	1	..	..	..	..	..	..	5	..	26	2	..	3	..	..	41	..	..	..	..	..	..	..	..	2	1	..	..	1	1	9	106	62
63	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	217	..	..	..	..	1	..	..	..	..	2	..	..	..	..	3	230	63
64	..	..	..	..	..	..	..	..	..	2	3	..	..	..	..	2	1	149	..	..	..	..	..	1	..	5	..	..	..	..	..	164	64
65	2	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	14	..	..	..	..	..	..	..	1	..	..	..	..	31	65
66	..	67	14	..	1	..	..	..	1	7	8	..	..	20	..	6	..	3	1	187	12	..	..	3	1	3	..	1	..	..	7	437	66
67	..	6	..	..	..	..	..	10	..	9	7	..	8	1	..	9	..	10	..	9	21	..	..	20	..	6	1	..	1	..	12	206	67
68	1	11	9	..	..	..	..	4	..	2	6	2	6	4	..	..	1	8	..	63	4	..	..	2	1	2	1	..	..	..	3	199	68
69	..	1	4	..	2	1	..	1	2	6	1	..	..	16	..	1	..	..	1	3	216	1	..	..	..	2	..	..	1	10	302	69
70	..	2	4	..	1	..	..	..	1	2	..	1	1	1	..	1	..	..	..	3	325	..	..	..	..	..	..	..	1	1	4	371	70
71	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	..	..	..	..	..	..	1	2	..	58	71
72	..	..	..	..	1	..	3	7	..	21	..	..	2	..	..	1	1	1	..	..	1	..	77	..	1	..	..	..	..	1	4	144	72
73	..	..	..	..	..	..	..	10	..	9	6	..	4	..	..	2	..	7	..	..	..	..	..	170	3	12	..	..	1	..	..	247	73
74	..	..	1	..	..	1	..	5	1	28	37	2	3	..	..	10	..	..	..	2	..	..	..	90	1	62	..	..	13	1	8	295	74
75	1	..	..	..	..	..	..	..	..	..	..	..	5	..	..	3	..	..	..	..	..	..	..	..	..	27	..	..	1	..	2	41	75
76	4	..	1	..	1	..	2	..	..	14	..	2	4	..	..	4	..	..	3	..	..	..	..	..	2	..	211	..	..	6	6	298	76
77	18	..	1	2	..	..	1	7	..	44	..	2	6	..	1	6	..	..	2	..	..	..	..	2	7	..	140	..	9	2	12	324	77
78	1	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	205	9	221	78
79	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	204	15	222	79
80	..	..	..	..	..	..	..	3	..	35	..	..	1	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	107	23	178	80
81	..	..	..	..	..	..	..	1	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	274	4	292	81
82	..	..	..	..	..	..	..	3	..	21	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	175	6	212	82
83	1	..	2	..	..	..	1	1	..	6	..	..	2	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	729	57	811	83
84	1	..	2	..	3	6	16	9	..	39	4	1	9	1	..	8	6	..	..	..	2	..	2	3	8	..	4	..	1	260	21	477	84
85	..	..	..	..	..	..	7	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	174	..	187	85
86	..	..	..	..	..	..	5	1	..	16	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	..	..	1	266	3	307	86
87	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41	5	47	87
	571	217	534	105	379	22	100	806	30	3063	360	126	1138	281	161	1926	118	244	127	330	745	173	105	370	274	260	505	25	181	2564	712	24,541	

(Continued from page 785)

While the minimum requirement is two years, three years or more in college is recommended. For the session 1938-1939, fifty-eight of the seventy-seven medical schools in the United States have adopted preliminary requirements in excess of the minimum; i. e., five require a degree, forty-five require three years, one requires four years, five schools will admit students with three years of college work if the baccalaureate degree is conferred in absentia at the end of the first year in medicine, and two schools have a requirement equivalent to two and one-half years. Only nineteen schools have a stated two year requirement. Actually, however, most of their students enter with a preliminary training far in excess of the prescribed minimum. The general trend toward a requirement of three or more years of college work seems to be due to two factors; first, a desire for more thorough grounding in all the branches of chemistry and, second, a desire for a greater familiarity with nonscience subjects, such as literature, history or economics, than can be secured in two years of college.

The medical schools in Canada vary in their preliminary requirement. One requires a degree for admission to a five year course; four have a six year medical course preceded by senior matriculation which is equivalent to the work of the first year in a college of arts; one school requires one year for entrance to a five year medical course; three require two years, and one has a three year prerequisite.

A table appears later in this study recording the number of graduates of 1938 holding baccalaureate degrees (table 13). Similarly, mention is made of those who have received the degree of B.S. in medicine.

While the two year college prerequisite has been exacted by the Council for twenty years, there are still five states which have not revised or amended their statutes to conform, although these states rarely license other than graduates of approved schools. The premedical training required in each state is shown in table 1.

LENGTH OF MEDICAL COURSE

The medical course in the United States in general covers four academic years of approximately thirty-two weeks each. Fifty schools offer such a course. A few schools, namely the Universities of Northwestern, Minnesota, Duke and Tennessee, operate to some extent on the quarter system permitting a student by utilizing the summer months to decrease the length of time necessary to obtain his degree. A considerable number of the students of these schools do not elect to study during the summer months. The medical schools of the University of Chicago are operated on a plan of individual promotion permitting a student to advance as rapidly as he desires but the great majority complete the course in twelve quarters.

Fifty-five schools require a four year course, while twelve require four years of systematic instruction followed by a fifth year spent as an intern or in research work. Ten schools offer only a two year course.

Five of the medical schools of Canada offer a five year course, four have a six year course and one offers courses in the medical sciences only which are covered in two years. Four Canadian schools require an internship for graduation. These data are shown in table 2.

ESSENTIALS OF AN ACCEPTABLE MEDICAL SCHOOL

The Essentials of an Acceptable Medical School were recently revised and ratified by the House of Delegates at its 1938 session. They are published in full on pages 810 to 812. The principal change is the recommendation that medical schools not already doing so select their beginning students from among those having three years of college work rather than the minimum requirement of two years. This recommendation was based on a study made in 1937 showing that more than half of the students (3,181) admitted for the session 1936-1937 had a college degree before beginning medicine and 32 per cent had more than four years, leaving only 12 per cent with the minimum of two years. Furthermore, seven schools have raised their requirement for the session 1938-1939 from two to three years, namely Loyola, Iowa, St. Louis, Syracuse, South Dakota, Texas and Marquette. Fifty-eight of the seventy-seven medical schools in the United States now have a prerequisite of more than two years of college. Of the remaining nineteen, Minnesota and Oklahoma have announced that beginning in 1939-1940 three years will be in force.

MEDICAL CURRICULUM

The standard curriculum recognized by the Council on Medical Education and Hospitals and contained in its Essentials of an Acceptable Medical School consists of from 3,600 to 4,400 hours, distributed as from 900 to 1,100 hours a year and grouped under nine headings; namely, anatomy (including embryology and histology); physiology; biochemistry; pathology, bacteriology and immunology; pharmacology; hygiene and sanitation; general medicine; general surgery, and obstetrics and gynecology. A certain percentage of hours of the whole number of hours in the courses is required in each of these groups.

DEVELOPMENTS IN MEDICAL EDUCATION

Reports from a large number of medical schools indicate that, as a result of the Council's survey, substantial improvements have been and are being made in faculty personnel, student selection, clinical facilities, buildings and equipment. Nineteen schools have reported budget increases which average $43,300. During the last four years the following institutions have greatly improved their physical plant: Alabama, Medical Evangelists, Georgia, Illinois, Indiana, Maryland, New York Medical College, Syracuse, North Carolina, Ohio State, Pittsburgh, Vanderbilt and Medical College of Virginia. Several other schools have plans outlined for additions to their physical plant.

MEDICAL SCHOOL SURVEY

The Council is now preparing a final report of the survey which will present a fairly comprehensive review of medical education based on the extensive data collected during the past three or four years. Such a commentary will doubtless be a valuable source of information to all who may be interested in medical teaching and will constitute a permanent record of the Association's most important contribution in the field of professional education. Confidential reports in graphic form have been sent to the schools visited. From these pattern maps, officers of an institution may learn where their school stands in relation to other schools with

respect to about 100 items used as a basis for comparison. The survey has revealed certain weaknesses in the organization and administration of a number of schools. Where unsatisfactory conditions have been found a warning has been given that improvement must be made within a limited time if the Council's approval is to be continued. The stimulating effect of such counsel is noticeable. Many of the schools will be revisited during the coming year in order to evaluate progress.

SCHOOLS OF THE BASIC MEDICAL SCIENCES

In the United States there are ten schools which offer only the first two years of the medical curriculum. For the most part these schools are located in smaller communities where clinical material is so scarce that satisfactory teaching of clinical medicine would be utterly impossible. In many instances, facilities do not exist for the satisfactory teaching of such subjects as physical diagnosis and gross pathology, which involve the use of clinical material. The same is true of the introductory courses in medicine and surgery, which commonly form a part of the second year schedule. Prolonged study of the problem led to the adoption in February 1937 of the following policy:

> Following the recent survey of the medical schools it was decided that, effective July 1, 1939, the Council will publish a list of schools which teach acceptably gross and microscopic anatomy, biochemistry, physiology, pharmacology, bacteriology and pathology, even though they do not offer a full course leading to a medical degree.
>
> The acceptance of courses involving the use of clinical material shall be left to the discretion of the faculties which admit to advanced standing students transferring from approved schools of the basic medical sciences.
>
> Surveys of the clinical courses and facilities will be made by the Council and reported to the individual medical schools on request.

STATISTICS OF MEDICAL SCHOOLS

The medical schools approved by the Council on Medical Education and Hospitals of the American Medical Association during 1937-1938 are listed in table 2, pages 786 and 787 and contain figures regarding the premedical requirement for the session 1938-1939, the length of the medical course by years, enrolment by classes for the session 1937-1938, including fifth year students interning or engaged in research, the number of graduates since July 1, 1937, dates of the beginning and ending of the forthcoming session and the month until which applications for admission to the freshman class are received. Changes in the classification that have taken place since the publication of the educational statistics in 1937 [2] can be noted in the footnotes at the bottom of the table and refer to those schools which are marked by asterisks preceding the name. Also contained in the footnotes are references to the fifth and sixth year enrolments and those schools which admit students at varying times during the year. The two medical schools of the University of Chicago do not report their students by classes and in this tabulation, therefore, only the total enrolment is given.

The data presented in this table constitute the basis also for several of the subsequent tabulations and beginning on page 815 are given historical information and essential facts concerning the schools arranged by states.

Seventy-seven institutions in the United States and ten in Canada are listed. All but four of these schools at the present time enjoy the approval of the Council. In eighty-five schools, 6,429 freshmen students were enrolled, 5,852 sophomores, 5,528 juniors, 5,561 seniors, 392 fifth year and 230 sixth year students during the session just ended. In the two medical schools of the University of Chicago 549 students were enrolled, making a total of 24,541 in the eighty-seven schools listed. There were in the United States 5,791 freshmen, 5,225 sophomores, 4,986 juniors, 5,036 seniors and the 549 students of the University of Chicago, a total of 21,587. The total students registered by classes in the United States was 21,038. The enrolment in the ten two year schools in the United States was 526, of which 289 were freshmen and 237 sophomores. The enrolment in the ten Canadian schools was first year 638, second year 627, third year 542, fourth year 525, fifth year 392 and sixth year 230, a total of 2,954. The 24,541 medical students enrolled do not include 1,132 fifth year students in the United States interning or engaged in research and 123 in Canada interning as a requirement for the degree of Doctor of Medicine.

Since July 1, 1937, 5,691 received M.D. degrees, 5,194 from schools in the United States and 497 from Canadian institutions.

In addition there were 125 part-time, 376 special and 722 graduate students studying in medical schools.

Eleven medical schools had an enrolment of less than 100 students. None of the schools comprising this figure give the complete medical course. Fourteen schools matriculated fewer than 200 but more than 100, twenty-nine less than 300, fourteen fewer than 400, thirteen fewer than 500, and four less than 600. Two schools matriculated more than 600. The smallest enrolment (thirty-one) was at the University of South Dakota School of Medical Sciences, where seventeen freshmen and fourteen sophomores matriculated. This school does not offer the complete medical course. The greatest number (811) were enrolled in the University of Toronto Faculty of Medicine, which has a six year course including premedical subjects. The corresponding high figure among schools in the United States was 634 at the University of Illinois College of Medicine. The lowest enrolment among four year medical colleges in the United States was 106 at the Woman's Medical College of Pennsylvania. Among coeducational four year schools, Albany Medical College enrolled the smallest number of students, 110. Howard University College of Medicine graduated twenty-two students, the lowest number. The two schools that enrolled the fewest students had twenty-five graduates respectively. The school graduating the greatest number was Rush Medical College, which awarded 168 diplomas. The majority of schools will begin the session 1938-1939 about the middle of September and end early in June.

Of seventy-four schools that replied to the inquiry regarding the month until which applications for admission to the first year class will be received, two replied January, three February, twelve March, eight April, four May, nine June, eight July, five August, twenty-one September and one October and November.

The name of the dean or administrative officer of each institution is also given in table 1.

BIRTH PLACE OF STUDENTS

In table 3, pages 788 and 789, the birth state of students in attendance in medical schools during 1937-1938 is shown by schools. The state furnishing the greatest number of students, according to state of birth,

2. J. A. M. A. **109**: 660 (Aug. 28) 1937.

was New York with 3,063, followed by Pennsylvania with 1,926, Illinois with 1,488 and Ohio with 1,138.

From the twelve states in which no medical schools are located there were enrolled as students the following:

	Enrolled	Number of Schools
Arizona	41	22
Delaware	41	19
Florida	132	28
Idaho	102	34
Maine	105	36
Montana	105	35
Nevada	22	13
New Jersey	806	65
New Mexico	30	21
Rhode Island	118	35
Washington	274	46
Wyoming	25	15
Total	1,801	

There were 181 born in the United States territories and possessions studying in forty-four schools in the United States and three in Canada. In addition, 2,564 students of Canadian birth were also studying medicine, 129 of whom were matriculated in forty-four schools in the United States and 2,435 in the ten Canadian medical schools. Eighteen students of Canadian birth were registered at the College of Medical Evangelists and thirteen at Wayne University College of Medicine. Students born in New York were enrolled in all but seven schools. Pennsylvania was represented in all but sixteen schools. Residents of New Jersey, which has no medical school, were admitted in all but twenty-two schools.

TABLE 4.—*Students Classified by Birth Place*

State	Schools	Attending School in State of Birth	Birth Place Elsewhere
Alabama	1	53	38
Arkansas	1	172	126
California	4	393	665
Colorado	1	108	99
Connecticut	1	43	147
District of Columbia	3	91	639
Georgia	2	272	99
Illinois	5	1,109	1,035
Indiana	1	396	33
Iowa	1	292	77
Kansas	1	185	104
Kentucky	1	152	190
Louisiana	2	293	482
Maryland	2	215	439
Massachusetts	3	520	618
Michigan	2	376	365
Minnesota	1	407	62
Mississippi	1	32	2
Missouri	3	255	633
Nebraska	2	287	294
New Hampshire	1	5	33
New York	9	1,704	830
North Carolina	3	143	215
North Dakota	1	38	10
Ohio	3	627	268
Oklahoma	1	142	81
Oregon	1	103	150
Pennsylvania	6	1,395	928
South Carolina	1	149	15
South Dakota	1	14	17
Tennessee	3	259	583
Texas	2	541	132
Utah	1	40	18
Vermont	1	77	67
Virginia	2	260	282
West Virginia	1	27	14
Wisconsin	2	351	271
Canada	10	2,435	519
Totals	87	13,961	10,580

In table 4 the classification of students is extended further by birth place, indicating that 13,961 are studying in the state of their birth and 10,580 elsewhere. This is particularly significant in Illinois, where, of the 2,144 students in five schools, 1,035 were born outside the state. More than 900 born elsewhere are studying in Pennsylvania, while of 2,534 studying in New York, 830 were born elsewhere. Altogether, 43.3 per cent are studying in schools located in other than their birth state. Eliminating the 1,801 born in states having no medical school, there are still 8,779 of the total number of students, 24,541, studying outside their birth state.

A perusal of table 4 will show many instances wherein the number studying elsewhere far exceeds the number attending school in the state of birth. It also shows some states in which the contrary is the case, notably Arkansas, Georgia, Indiana, Iowa, Kansas, Minnesota, Ohio, South Carolina and Texas.

One may not conclude that all of those attending schools outside the state in which they were born are nonresidents, but since requirements for "residence" differ widely among the states comparable figures based on residence are not obtainable.

There were 569 students of foreign nativity pursuing courses in sixty-six institutions in the United States. Altogether, seventy-seven countries were represented. The greatest number (sixty-seven) came from Russia; forty-nine were born in China, forty in Germany and Italy respectively, thirty-six in Poland, twenty-five in England, twenty-one in the British West Indies, nineteen in Mexico, eighteen in Cuba, seventeen in Japan, fifteen in India, thirteen in Austria, twelve in Greece and eleven in Hungary. From all other countries there were less than nine. Forty-two students were admitted to the College of Medical Evangelists, which educates mainly medical missionaries. These students represented twenty-one countries. Thirty-five students were admitted to the University of Illinois College of Medicine from fifteen countries, and twenty-three from seventeen countries went to Harvard and the same number from fifteen countries to the Hahnemann Medical College. It may be presumed that many of these are now citizens of the United States.

RESIDENT AND NONRESIDENT STUDENTS

Table 5 gives for each medical school the number of resident and nonresident students according to the individual school's definition of the word "resident." This table is being reproduced for the second time. Among state universities, as well as other schools, there is a variation in the definition of the term. In some universities this is determined by the legal or permanent residence of the student, parents or guardian only, while in some schools continuous residence for six months one, two or three years just prior to the student's application for enrolment is also required. Others require the student to be a voter; parents' home in the state established prior to beginning of premedical work; the student is a taxpayer or a dependent of a taxpayer, regardless of whether he resides in the state; self-supporting student, and each case determined by attorney after consideration of birth, citizenship, residence of parents, and so on. Of these methods the most common is the determination of residence by ascertaining whether the student, parents or guardian has been a bona fide resident for a period not less than six months. This requirement is in force in sixteen universities. In most schools also a student coming into the state for educational purposes only and establishing residence would not be considered a resident. Among other than state universities the term "resident" is defined mostly by the home address of the student or the legal residence of the parents or guardian. Two such schools did not reply to our inquiry, while in one school a student is considered a resident if he lives in the state.

On the basis of these factors, in the seventy-seven approved medical schools in the United States there were 13,518 students reported as residents and 8,069 as nonresidents, a total of 21,587 in the United States. The state university enrolling the greatest number of nonresidents was the University of Tennessee College of Medicine, which had 222 residents and 215 nonresidents, while at Ohio State University College of Medicine and the University of Texas School of Medicine no nonresidents were registered, and only one of 633 students of the University of Illinois College of Medicine was a nonresident.

TABLE 5.—*Resident and Nonresident Students*

School	Resident Students	Nonresident Students	Totals
University of Alabama	60	31	91
University of Arkansas	228	70	298
University of California	246	1	247
College of Medical Evangelists	89	295	384
University of Southern California	179	11	190
Stanford University	195	42	237
University of Colorado	185	22	207
Yale University	56	134	190
Georgetown University	21	329	350
George Washington University	57	192	249
Howard University	13	118	131
Emory University	142	78	220
University of Georgia	148	3	151
Loyola University	255	148	403
Northwestern University	195	363	558
Rush Medical College	70	192	262
Division of Biological Sciences	123	164	287
University of Illinois	633	1	634
Indiana University	396	33	429
State University of Iowa	361	8	369
University of Kansas	261	28	289
University of Louisville	178	164	342
Louisiana State University	182	125	307
Tulane University of Louisiana	116	352	468
Johns Hopkins University	55	226	281
University of Maryland	218	155	373
Boston University	128	71	199
Harvard University	117	403	520
Tufts College	278	141	419
University of Michigan	364	117	481
Wayne University	253	7	260
University of Minnesota	407	62	469
University of Mississippi	34	..	34
University of Missouri	79	..	79
St. Louis University	88	373	461
Washington University	132	216	348
Creighton University	51	211	262
University of Nebraska	302	17	319
Dartmouth Medical School	5	33	38
Albany Medical College	79	31	110
Long Island College of Medicine	281	80	361
University of Buffalo	232	26	258
Columbia University	210	195	405
Cornell University	170	113	283
New York Medical College	190	78	268
New York University	404	92	496
University of Rochester	101	76	177
Syracuse University	137	39	176
University of North Carolina	53	12	65
Duke University	68	184	252
Wake Forest College	35	6	41
University of North Dakota	46	2	48
University of Cincinnati	218	76	294
Western Reserve University	204	66	270
Ohio State University	331	..	331
University of Oklahoma	217	6	223
University of Oregon	165	88	253
Hahnemann Medical College	298	250	548
Jefferson Medical College	287	211	498
Temple University	310	131	441
University of Pennsylvania	321	179	500
Woman's Medical College	41	65	106
University of Pittsburgh	230	..	230
Medical College of South Carolina	149	15	164
University of South Dakota	19	12	31
University of Tennessee	222	215	437
Meharry Medical College	9	197	206
Vanderbilt University	64	135	199
Baylor University	251	51	302
University of Texas	371	..	371
University of Utah	49	9	58
University of Vermont	96	48	144
University of Virginia	170	77	247
Medical College of Virginia	116	179	295
West Virginia University	37	4	41
University of Wisconsin	276	22	298
Marquette University	161	163	324
Totals	13,518	8,069	21,587
Totals for 1936-1937	14,026	8,069	22,095

Among other than state universities it is of interest to note the resident and nonresident enrolment. Many of the schools draw their enrolment from residents of the state. This is particularly true at Southern California, Stanford, Emory, Wayne, Long Island, Buffalo, New York Medical College, New York University, Syracuse, Cincinnati, Western Reserve, Pittsburgh and Baylor.

There is a similarity between the figures in this table and those of the preceding one classifying students by birth place. Excluding the Canadian registration given in table 4, there were 11,526 students attending school in the state of their birth and 10,061 elsewhere, as compared with 13,518 whose legal residence is in the state in which they are pursuing their medical courses and 8,069 classified as nonresidents.

TABLE 6.—*Schools, Students and Graduates by States**

State	Schools	Students	Graduates
Alabama	1	91	..
Arkansas	1	298	80
California	4	1,058	271
Colorado	1	207	49
Connecticut	1	190	40
District of Columbia	3	730	197
Georgia	2	371	94
Illinois	5	2,144	626
Indiana	1	429	87
Iowa	1	369	83
Kansas	1	289	67
Kentucky	1	342	93
Louisiana	2	775	168
Maryland	2	654	178
Massachusetts	3	1,138	287
Michigan	2	741	180
Minnesota	1	469	117
Mississippi	1	34	...
Missouri	3	888	199
Nebraska	2	581	143
New Hampshire	1	38	...
New York	9	2,534	583
North Carolina	3	358	47
North Dakota	1	48	..
Ohio	3	895	227
Oklahoma	1	223	52
Oregon	1	253	55
Pennsylvania	6	2,323	601
South Carolina	1	164	42
South Dakota	1	31	..
Tennessee	3	842	188
Texas	2	673	153
Utah	1	58	..
Vermont	1	144	38
Virginia	2	542	132
West Virginia	1	41	...
Wisconsin	2	622	117
Totals	77	21,587	5,194

* Excluding fifth or intern year students.

The ten schools in Canada reported 2,105 residents of Canada and 849 nonresidents. Their definition of a resident varied from students whose permanent address is within one of the provinces of Canada or the specific province in which the school is located to home address on registration and taxpayers. The greatest number of nonresidents in any one school were found at McGill University Faculty of Medicine (336), where only 141 residents of Canada were enrolled. This school has always obtained a large portion of its student body from the United States. At Dalhousie University Faculty of Medicine there were 113 nonresidents out of a student body of 178. All other institutions registered fewer than 100 nonresidents but more than twenty-five with one exception—the University of Saskatchewan School of Medical Sciences—with only two out of an enrolment of forty-seven.

Comparing the figures for Canada with those in table 4, classifying birth place reveals, as in the United States, somewhat similar figures: 2,435 born in Canada and 519 elsewhere, compared with 2,105 residents and 849 nonresidents.

SCHOOLS, STUDENTS AND GRADUATES BY STATES

Medical schools are located in thirty-six states and the District of Columbia. In table 6 are tabulated the number of schools, students and graduates by states. New York, with the largest number of schools, nine, naturally had the greatest number of students and graduates, 2,534 and 583 respectively. Pennsylvania with six schools had 2,323 students and 601 graduates. Illinois with five schools, 2,144 students and 626 graduates, ranks third, while Massachusetts with three schools, 1,138 students and 287 graduates and California with four schools, 1,058 students and 271 graduates complete the group of states having a medical school enrolment over 1,000.

In the seventy-seven medical schools in the United States, including those that offer only preclinical courses, there were 21,587 students and 5,194 graduates. Students interning as a requirement for the degree, or fifth year students, are not included in this figure. Neither are part-time, special and graduate students.

The greatest number of graduates in any one state were the 626 who completed their courses in Illinois schools. New York with four more schools than Illinois had forty-three fewer graduates and Pennsylvania with one more school had twenty-five fewer graduates than Illinois and eighteen more than New York. Three other states had more than 200 graduates. Eleven states had more than 100 but less than 200 graduates. All others had less than 100.

REQUIRED HOSPITAL INTERNSHIPS

The medical schools and licensing boards requiring or planning to require a hospital internship for the M.D. degree and state licensure, respectively, are shown in tables 7 and 8. The effective date of the requirement is shown in both tables. Thirteen schools in the United States and four in Canada make the internship a prerequisite for a degree. A few of the medical schools will accept research or other clinical work in lieu of hospital service. Since 1915 the M.D. degree of the University of Minnesota Medical School has been conditioned on an internship. Rush Medical College, which has required the internship for the M.D. degree since 1919, and the School of Medicine of the Division of Biological Sciences, University of Chicago, since 1930, discontinued this formal requirement in 1936. McGill University Faculty of Medicine reorganized its medical curriculum into a course of five years, including an internship replacing the former course spread over five academic years of seven and a half months each by a course covering four years of nine months. The fifth year may be spent in an internship in an approved hospital or in further medical study at McGill or at another medical school approved by it. The changed curriculum was inaugurated for the freshman class of 1936-1937. It will not affect the students who began their course under the former system.

TABLE 7.—*Internship Required by Medical Schools*

	Effective Date
University of California Medical School	1919
College of Medical Evangelists	1927
University of Southern California School of Medicine	1933
Stanford University School of Medicine	1919
Loyola University School of Medicine	1922
Northwestern University Medical School	1920
University of Illinois College of Medicine	1922
Louisiana State University Medical Center	1934
Wayne University College of Medicine	1924
University of Minnesota Medical School	1915
Duke University School of Medicine*	1932
University of Cincinnati College of Medicine	1926
Marquette University School of Medicine	1920
Canada	
University of Manitoba Faculty of Medicine	
Dalhousie University Faculty of Medicine	
McGill University Faculty of Medicine	
University of Montreal Faculty of Medicine	

* Requires a two year internship.

TABLE 8.—*Internship Required by Medical Licensing Boards*

	Effective Date		Effective Date
Alabama	1939	Oklahoma	1933
Alaska	1917	Oregon	1933
Delaware	1924	Pennsylvania	1914
District of Columbia	1930	Rhode Island	1917
Illinois	1923	South Dakota	1925
Iowa	1924	Utah	1926
Louisiana	1939	Vermont	1934
Michigan	1922	Washington	1919
New Hampshire	1938	West Virginia	1932
New Jersey	1916	Wisconsin	1927
North Dakota	1918	Wyoming	1931

Duke University School of Medicine grants the degree after completion of the senior year, but all graduates are required to spend at least two years in hospital or laboratory work after graduation.

As revealed in table 8, twenty states, Alaska and the District of Columbia require that applicants for licensure shall have completed a hospital internship. The first state to adopt this requirement was Pennsylvania in 1914. The New Hampshire law became effective Jan. 1, 1938, while in Alabama and Louisiana it will be in force after Jan. 1, 1939.

While some of the medical schools and licensing boards have their own list of hospitals acceptable for intern training, generally the Council's list of hospitals approved for internships is followed. A revised edition will be found beginning on page 822.

During 1937-1938 there were 1,132 students of the United States and 123 in Canada reported as interning, a total of 1,255.

GRADUATES AND INTERNSHIPS

In table 9 are enumerated the graduates of the United States and Canada from July 1, 1936, to July 1, 1937, who have served or are still engaged as interns. Included also are figures for those schools which require the internship or other acceptable clinical work as a requirement for graduation. There were 5,852 fifth year students or graduates interning, the majority commencing the internship July 1, 1937, and ending July 1, 1938. The number of graduates and those who completed the medical course during the period July 1, 1936, to July 1, 1937, was 5,946; 4,760 graduates of medical schools and 1,186 fifth year students. Of these, ninety-four, 1.6 per cent, either were not successful in securing or did not desire internships. Several of the fifth year students satisfied this requirement by research or other clinical work. These 4,760 graduates and 1,186 intern students represented 4,383 graduates and 1,064 intern students of the United States and 377 graduates and 122 intern students in Canada. In the Canadian schools, of the 499 graduates or intern students, 467 were serving internships and thirty-two are unaccounted for.

Of the 5,852, 1,058 in the United States and 122 in Canada were completing the fifth year requirement of the schools they attended in order to obtain the M.D. degree, a total of 1,180.

With the exception of one, every school in the list had more than 90 per cent of its graduates serving internships and in fifty schools 100 per cent interned. Excluding those schools that require the internship for graduation, 98 per cent of all graduates here listed have obtained or are obtaining this added experience.

TABLE 9.—*Graduates from July 1, 1936 to July 1, 1937 Who Have Served Internships*

School	Graduates	Interned
University of Arkansas	61	59
University of California	63*	63
College of Medical Evangelists	102*	102
University of Southern California	43*	43
Stanford University	63*	63
University of Colorado	48	48
Yale University	47	47
Georgetown University	117	117
George Washington University	59	59
Harvard University	35	34
Emory University	55	55
University of Georgia	33	30
Loyola University	115*	112
Northwestern University	141*	141
Rush Medical College	289	289
Division of Biological Sciences	70	65
University of Illinois	150*	147
Indiana University	97	97
State University of Iowa	80	80
University of Kansas	69	69
University of Louisville	89	87
Louisiana State University	55*	55
Tulane University	113	112
Johns Hopkins University	63	58
University of Maryland	114	114
Boston University	56	53
Harvard University	139	137
Tufts College	117	117
University of Michigan	95	95
Wayne University	78*	78
University of Minnesota	117*	117
St. Louis University	122	122
Washington University	94	94
Creighton University	59	59
University of Nebraska	87	87
Albany Medical College	21	21
Long Island College	81	81
University of Buffalo	58	56
Columbia University	94	94
Cornell University	71	70
New York Medical College	89	86
New York University	139	132
University of Rochester	35	35
Syracuse University	40	40
Duke University	55†	55
University of Cincinnati	72*	72
Western Reserve University	61	61
Ohio State University	94	94
University of Oklahoma	59	59
University of Oregon	53	53
Hahnemann Medical College	121	121
Jefferson Medical College	138	138
Temple University	116	116
University of Pennsylvania	134	131
Woman's Medical College	23	22
University of Pittsburgh	62	62
Medical College of South Carolina	45	45
University of Tennessee	102	98
Meharry Medical College	35	35
Vanderbilt University	51	51
Baylor University	78	72
University of Texas	79	78
University of Vermont	50	50
University of Virginia	61	60
Medical College of Virginia	82	79
University of Wisconsin	48	48
Marquette University	65*	65
University of Alberta	32	31
University of Manitoba	49*	49
Dalhousie University	32*	32
Queen's University	47	46
University of Western Ontario	46	42
University of Toronto	109	109
McGill University	103	103
University of Montreal	41*	41
Laval University	40	14
Totals	5,946	5,852

* 1938 graduates. Internship or other acceptable clinical work is a requirement for the M.D. degree.
† Two year internship requirement after graduation.

DISTRIBUTION BY SEX

Students and graduates in the United States and Canada classified by sex are shown in table 10. Seventy-seven schools had both men and women students, of which sixty had women graduates. Women were enrolled in nine of the eleven schools offering only the first two years of the medical course in the United States and Canada. Altogether there were 23,234 men and 1,307 women students, and 5,439 men and 252 women graduates. Of these, 20,426 male students and 4,957 graduates were in schools in the United States and 2,808 and 482 respectively in Canada. Likewise there were 1,161 women students and 237 graduates in the United States, and 146 students and fifteen graduates in Canada. Of the 23,234 and 5,439 male students and graduates, 2,676 and 668 respectively were enrolled

TABLE 10.—*Distribution by Sex*

School	Students		Graduates	
	Men	Women	Men	Women
University of Alabama	84	7	..	..
University of Arkansas	287	11	77	3
University of California	218	29	50	13
College of Medical Evangelists	355	29	98	4
University of Southern California	183	7	41	2
Stanford University	225	12	62	1
University of Colorado	192	15	43	6
Yale University	177	13	37	3
Georgetown University	350	..	107	..
George Washington University	228	21	57	11
Howard University	122	9	22	..
Emory University	220	..	60	..
University of Georgia	143	8	32	2
Loyola University	388	15	112	3
Northwestern University	541	17	137	4
Rush Medical College	250	12	163	5
Division of Biological Sciences	261	26	48	4
University of Illinois	592	42	144	6
Indiana University	412	17	86	1
State University of Iowa	355	14	81	2
University of Kansas	273	16	60	7
University of Louisville	335	7	93	..
Louisiana State University	294	13	53	2
Tulane University	453	15	110	3
Johns Hopkins University	252	29	71	5
University of Maryland	358	15	98	4
Boston University	177	22	38	5
Harvard University	520	..	135	..
Tufts College	402	17	104	5
University of Michigan	441	40	98	4
Wayne University	249	11	74	4
University of Minnesota	439	30	114	3
University of Mississippi	31	3	...	..
University of Missouri	76	3	...	..
St. Louis University	461	..	103	..
Washington University	328	20	91	5
Creighton University	253	9	67	1
University of Nebraska	312	7	75	..
Dartmouth Medical School	38	..	...	..
Albany Medical College	101	9	22	3
Long Island College	341	20	84	4
University of Buffalo	249	9	57	1
Columbia University	374	31	84	6
Cornell University	254	29	58	8
New York Medical College	254	14	55	2
New York University	458	38	116	8
University of Rochester	164	13	37	2
Syracuse University	165	11	35	1
University of North Carolina	59	6	...	..
Duke University	242	10	44	3
Wake Forest College	41	..	...	..
University of North Dakota	44	4	...	..
University of Cincinnati	278	16	71	1
Western Reserve University	256	14	60	3
Ohio State University	314	17	88	4
University of Oklahoma	213	10	50	2
University of Oregon	239	14	53	2
Hahnemann Medical College	548	..	129	..
Jefferson Medical College	498	..	134	..
Temple University	414	27	106	7
University of Pennsylvania	480	20	135	4
Woman's Medical College	...	106	...	25
University of Pittsburgh	217	13	58	3
Medical College of South Carolina	154	10	42	..
University of South Dakota	29	2	...	..
University of Tennessee	419	18	99	6
Meharry Medical College	197	9	33	2
Vanderbilt University	191	8	45	3
Baylor University	285	17	69	4
University of Texas	345	26	78	2
University of Utah	54	4	...	..
University of Vermont	138	6	37	1
University of Virginia	240	7	53	3
Medical College of Virginia	265	30	72	4
West Virginia University	37	4	...	..
University of Wisconsin	279	19	48	4
Marquette University	315	9	64	1
University of Alberta	208	13	31	..
University of Manitoba	207	15	47	2
Dalhousie University	176	2	31	1
Queen's University	292	..	54	..
University of Western Ontario	197	15	31	2
University of Toronto	742	69	109	10
McGill University	458	19	97	..
University of Montreal	182	5	41	..
Laval University	304	3	41	..
University of Saskatchewan	42	5	...	..
Totals	23,234	1,307	5,439	252

in schools in the United States which are not coeducational or do not admit women, and 292 and fifty-four in Canada. An average of sixteen women students were enrolled in the seventy-eight coeducational institutions in the United States and Canada and four graduates from sixty colleges.

TABLE 11.—*Women in Medicine in the United States*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905	1,073	4.1	219	4.0
1910	907	4.0	116	2.6
1915	592	4.0	92	2.6
1920	818	5.8	122	4.0
1925	910	5.0	204	5.1
1926	935	5.0	212	5.4
1927	964	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	955	4.4	204	4.5
1931	990	4.5	217	4.6
1932	955	4.3	208	4.2
1933	1,056	4.7	214	4.4
1934	1,020	4.5	211	4.2
1935	1,077	4.7	207	4.1
1936	1,133	5.0	246	4.7
1937	1,113	5.1	238	4.4
1938	1,161	5.4	237	4.6

TABLE 12.—*Part-Time, Special and Graduate Students in Medical Schools 1937-1938*

	Part-Time Students	Special Students	Graduate Students
University of Alabama	7	..	..
University of Arkansas	1	4	..
University of Southern California	..	12	6
University of Colorado	..	..	34
Georgetown University	..	1	..
George Washington University	..	..	1
Howard University	2	..	..
Emory University	3	..	..
University of Georgia	5	..	..
Division of Biological Sciences	..	31	..
Loyola University	..	4	..
Northwestern University	..	111	95
Rush Medical College	..	2	14
University of Illinois	..	19	79
Indiana University	..	1	1
State University of Iowa	1	2	14
University of Kansas	5	1	9
University of Louisville	..	1	..
Louisiana State University	5	..	..
Johns Hopkins University	6	14	24
University of Maryland	..	3	..
Boston University	..	..	6
Tufts College	..	2	..
University of Michigan	6	4	..
Wayne University	5	6	27
University of Minnesota	..	2	..
University of Mississippi	5	..	..
St. Louis University	12	..	..
Washington University	..	2	21
Creighton University	..	4	..
University of Nebraska	..	..	12
Dartmouth Medical College	..	..	2
Columbia University	..	..	69
Cornell University	..	7	6
New York University	13	5	141
University of Buffalo	16	5	4
University of North Carolina	3	19	6
University of North Dakota	..	..	3
University of Oklahoma	..	..	5
University of Oregon	..	9	14
University of Pittsburgh	3	3	..
Woman's Medical College	..	..	1
University of Tennessee	..	9	9
Vanderbilt University	5	20	50
Baylor University	8	..	..
University of Texas	..	2	..
University of Utah	4	..	..
Medical College of Virginia	1	..	..
Marquette University	2	..	..
Laval University	..	1	..
McGill University	2	..	..
University of Montreal	..	..	37
University of Toronto	4	68	32
University of Western Ontario	1	2	..
Totals	125	376	722

WOMEN IN MEDICINE IN THE UNITED STATES

During 1937-1938 there were 1,161 women studying medicine in the United States, forty-eight more than during the session 1936-1937. The percentage of women to all students for the academic year 1937-1938 was 5.4. There were 237 graduates, one less than last year. Of the women matriculants, 106 were in attendance at the one medical college for women, while 1,055 were matriculated in seventy-eight coeducational schools. From the Woman's Medical College twenty-five were graduated, while 212 secured their degrees from coeducational institutions. These data are given in table 11. Of interest also is the fact that thirteen schools enrolled more than twenty-five women. In the fourteen years since 1925, 3,008 women have graduated in medicine. The Council's list of hospitals approved for internships includes over a hundred hospitals offering about 250 internships open to women. Statistics are at present being compiled of the number of women physicians by county and state, based on the data included in the American Medical Directory, 1938 edition. This study has revealed that there are 7,470 women physicians in the United States.

PART-TIME, SPECIAL AND GRADUATE STUDENTS

In addition to the regularly enrolled students, there were 1,223 part-time, special and graduate students pursuing medical subjects in forty-nine medical schools in the United States and five in Canada. This group consists of 125 part-time, 376 special and 722 graduate students. These data will be found in table 12.

The part-time students were enrolled in twenty-five schools, twenty-two in the United States and three in Canada. The largest group enrolled in any one school was sixteen studying at the University of Buffalo School of Medicine. Thirteen were registered in New York University College of Medicine and twelve at St. Louis University School of Medicine. Less than eight were enrolled in twenty-one schools.

The 376 special students represented twenty-nine schools in the United States and three in Canada. The greatest number (111) were at Northwestern University School of Medicine; at the University of Toronto Faculty of Medicine sixty-eight were in attendance; the School of Medicine of the Division of Biological Sciences of the University of Chicago had thirty-one, Vanderbilt twenty, North Carolina and Illinois nineteen.

Students pursuing subjects leading to higher degrees were studying in twenty-eight schools. Altogether there were 722 such, of whom more than sixty were studying in each of four schools, the greatest number (141) having been enrolled at New York University.

The following schools matriculated these three types of students: Universities of Iowa, Kansas, Johns Hopkins, Wayne, New York University, Buffalo, North Carolina, Vanderbilt and Toronto.

Among Canadian schools seven part-time, seventy-one special and sixty-nine graduate students were enrolled.

GRADUATES WITH BACCALAUREATE DEGREES

From the figures contained in table 13, it can be noted that 3,685 of the 5,691 graduates of medical schools for the session 1937-1938 also hold baccalaureate degrees. Only five schools in the United States required a degree for admission for the session, one required four years, four schools admitted students with three years of college work provided the baccalaureate degree would be conferred in absentia at the end of the first year in medicine, thirty-nine required three years, one school had a requirement equivalent to two and one-half years and twenty-seven exacted the two year requirement. Twenty-three schools offer a B.S. in medicine degree at some time during the

medical course—seven at the end of the first year, thirteen after two years in medicine and two after three years, while in one school it can be obtained at any time during the medical course. All the graduates of Stanford, Johns Hopkins, Wayne, Cornell, New York University, Western Reserve, Oregon, Jefferson, Vanderbilt and Wisconsin held baccalaureate degrees. Four of these schools—Stanford, Wayne, Oregon and Wisconsin—do not have a degree requisite, their requirement being three years.

TABLE 13.—*Graduates with Baccalaureate Degrees*

School	Graduates	Number Holding Degrees
University of Arkansas School of Medicine	80	23
University of California Medical School	63	61
College of Medical Evangelists	102	10
University of Southern California School of Medicine	43	40
Stanford University School of Medicine	63	63
University of Colorado School of Medicine	49	40
Yale University School of Medicine	40	38
Georgetown University School of Medicine	107	86
George Washington University School of Medicine	68	43
Howard University College of Medicine	22	20
Emory University School of Medicine	60	36
University of Georgia School of Medicine	34	12
Loyola University School of Medicine	115	29
Northwestern University Medical School	141	91
Rush Medical College	168	157
Division of Biological Sciences	52	36
University of Illinois College of Medicine	150	29
Indiana University School of Medicine	87	32
State University of Iowa College of Medicine	83	22
University of Kansas School of Medicine	67	40
University of Louisville School of Medicine	93	35
Louisiana State University Medical Center	55	14
Tulane University of Louisiana School of Medicine	113	60
Johns Hopkins University School of Medicine	76	76
University of Maryland School of Medicine	102	71
Boston University School of Medicine	43	38
Harvard University Medical School	135	126
Tufts College Medical School	109	99
University of Michigan Medical School	102	86
Wayne University College of Medicine	78	78
University of Minnesota Medical School	117	17
St. Louis University School of Medicine	103	56
Washington University School of Medicine	96	77
Creighton University School of Medicine	68	23
University of Nebraska College of Medicine	75	43
Albany Medical College	25	24
Long Island College of Medicine	88	76
University of Buffalo School of Medicine	58	21
Columbia Univ. College of Physicians and Surgeons	90	84
Cornell University Medical College	66	66
New York Medical College	57	49
New York University College of Medicine	124	124
University of Rochester School of Medicine	39	35
Syracuse University College of Medicine	36	32
Duke University School of Medicine	47	28
University of Cincinnati College of Medicine	72	21
Western Reserve University School of Medicine	63	63
Ohio State University College of Medicine	92	67
University of Oklahoma School of Medicine	52	29
University of Oregon Medical School	55	55
Hahnemann Medical College	129	77
Jefferson Medical College of Philadelphia	134	134
Temple University School of Medicine	113	88
University of Pennsylvania School of Medicine	139	132
Woman's Medical College of Pennsylvania	25	20
University of Pittsburgh School of Medicine	61	47
Medical College of the State of South Carolina	42	20
University of Tennessee College of Medicine	105	51
Meharry Medical College	35	29
Vanderbilt University School of Medicine	48	48
Baylor University College of Medicine	73	34
University of Texas School of Medicine	80	38
University of Vermont College of Medicine	38	33
University of Virginia Department of Medicine	56	31
Medical College of Virginia	76	47
University of Wisconsin Medical School	52	52
Marquette University School of Medicine	65	23
University of Alberta Faculty of Medicine	31	12
University of Manitoba Faculty of Medicine	49	11
Dalhousie University Faculty of Medicine	32	15
Queen's University Faculty of Medicine	54	4
University of Western Ontario Medical School	33	11
University of Toronto Faculty of Medicine	119	16
McGill University Faculty of Medicine	97	57
University of Montreal Faculty of Medicine	41	36
Laval University Faculty of Medicine	41	38
Total	5,691	3,685

SCHOOLS, STUDENTS AND GRADUATES IN THE UNITED STATES, 1905-1938

The number of medical schools, students and graduates in the United States for each five year period from 1905 to 1920 and for each year since is shown in table 14. The total number of undergraduate medical students for the college session 1937-1938 was 21,587. In 1905 in the 160 schools then existing there were 26,147 students. This tabulation includes data for only those taking medical courses leading to the M.D. degree. They do not include part-time and special students even though their work may later be accepted for the M.D. degree, since they are reported as part-time and special students and not candidates for a medical degree. Omitted from these figures also are university graduate students majoring in the medical school but not candidates for the M.D. degree. In the ten years from 1910 to 1920 there was a steady decrease in the enrolment, while from 1921 to 1935 there was a continuous increase. In 1938 the enrolment decreased by 508 from the preceding year. The number of students admitted in 1938 was 977 fewer than in 1936 and 1,301 fewer than in 1935. In 1935 the Council advised against the admission of larger classes than can be accommodated or than can reasonably be expected to satisfy approved scholastic standards. Many of the schools, as will be noted in table 14, heeded this declaration and decreased their freshman enrolment in the interest of better medical education, and others are planning to do so in the future. This may not mean any decrease in the number of medical graduates, because more careful selection will doubtless decrease the number of students who fail to complete their course because of poor scholarship.

TABLE 14.—*Schools, Students and Graduates in the United States—1905-1938*

Year	No. Schools	Students*	Graduates
1905	160	26,147	5,606
1910	131	21,526	4,440
1915	96	14,891	3,536
1920	85	13,798	3,047
1921	83	14,466	3,186
1922	81	15,635	2,520
1923	80	16,960	3,120
1924	79	17,728	3,562
1925	80	18,200	3,974
1926	79	18,840	3,962
1927	80	19,662	4,035
1928	80	20,545	4,262
1929	76	20,878	4,446
1930	76	21,597	4,565
1931	76	21,982	4,735
1932	76	22,135	4,936
1933	77	22,466	4,895
1934	77	22,799	5,035
1935	77	22,888	5,101
1936	77	22,564	5,183
1937	77	22,095	5,377
1938	77	21,587	5,194

* Includes figures for schools offering preclinical courses.

Again referring to table 14, it will be noted that the total number of graduates was 5,194, which was 183 fewer than were graduated in 1937. With the exception of the slight decrease in the number of graduates in 1933 as compared with previous years, there was a steady increase from 1926 to 1937 and in 1938 a decrease. In the seventy-seven recognized medical schools in the United States during 1937-1938 there were 21,587 students, including those having an incomplete course, and 5,194 graduates.

STUDENTS BY CLASSES, 1930-1938

The number of students in the various classes of the medical schools in the United States for each session from 1930-1931 to 1937-1938 inclusive is shown in table 15. The total attendance for the first year for the session 1937-1938 was 5,791, 119 fewer than the number enrolled for the session 1936-1937. Since the

session 1933-1934, when there were 6,457 enrolled, there has been a reduction in this class of 666. The total attendance for 1937-1938 for the remainder of the classes was respectively 5,225, 4,986, 5,036 and 1,132, a total of 22,719. The two medical schools of the University of Chicago are not operated under the promotion by class system but on an individual plan. It is not possible for the schools to report their students in this manner and accordingly they are not included in the figures by classes, but their enrolment is included in the total. At the School of Medicine of the Division of Biological Sciences of the University of Chicago there were 287 and 262 at Rush Medical College, a total of 549. There were 631 fewer students enrolled than in 1936-1937, 1,058 fewer than 1935-1936. The sophomore enrolment decreased forty-four, the junior enrolment 154, the senior enrolment 122 and the fifth or intern year students 123. These figures are exclusive of the figures for the two schools referred to.

TABLE 15.—*Students in the United States Shown by Classes—1930-1938*

	1st Year	2d Year	3d Year	4th Year	5th Year‡	Total
1930-1931	6,456	5,538	5,080	4,908	1,025	23,007
1931-1932	6,260*	5,462*	4,932*	4,885*	1,067	23,202
1932-1933	6,426*	5,479*	5,017*	4,948*	1,106	23,572
1933-1934	6,457†	5,571†	4,988†	4,937†	1,183	23,982
1934-1935	6,356†	5,624†	5,142†	4,905†	1,233	24,121
1935-1936	6,005†	5,458†	5,230†	5,020†	1,213	23,777
1936-1937	5,910*	5,269*	5,140*	5,158*	1,255	23,350
1937-1938	5,791*	5,225*	4,986*	5,036*	1,132	22,719

* Enrolment for the two medical schools of the University of Chicago not included.
† Enrolment for the two medical schools of the University of Chicago and Duke University not included.
‡ Intern year.

TABLE 16.—*Negro Students and Graduates*

School	Enrolment by Classes During 1937-1938					
	1st Year	2d Year	3d Year	4th Year	Totals	Graduates
College of Medical Evangelists	..	..	..	2	2	2
Howard University College of Medicine	34	35	33	19	121	18
Loyola University School of Medicine	..	..	..	1	1	..
Univ. of Chicago, Div. of Biological Sciences	..	..	1	..	1	..
University of Illinois College of Medicine	1	..	1	1	3	1
Indiana University School of Medicine	2	1	..	1	4	1
University of Kansas School of Medicine	1	1	..	..	2	..
Boston University School of Medicine	..	..	2	..	2	..
Tufts College Medical School	..	1	..	..	1	..
Wayne University College of Medicine	1	2	2	1	6	..
University of Michigan Medical School	4	1	..	..	5	..
University of Minnesota Medical School	..	..	1	..	1	..
Columbia Univ. College of Phys. and Surgs	..	1	..	2	3	2
New York Medical College	1	..	..	..	1	..
New York University College of Medicine	..	1	..	..	1	..
Western Reserve University School of Medicine	..	..	1	..	1	..
Ohio State University College of Medicine	1	1	1	1	4	1
Temple University School of Medicine	..	1	..	..	1	..
University of Pennsylvania School of Medicine	..	..	..	1	1	1
Meharry Medical College	79	57	35	35	206	35
University of Toronto	1	1	..	..	2	..
McGill University Faculty of Medicine	1	1	..	..	2	..
University of Montreal Faculty of Medicine	..	..	..	..	1*	..
Totals	126	104	77	64	372	61
Totals during 1936-1937	130	88	70	82	372†	84

* Fifth year student.
† Includes fifth year enrolment of two.

NEGRO STUDENTS AND GRADUATES

The Negro medical students for the session 1937-1938 enrolled in the United States and Canada are recorded by classes in table 16. Totals for the session 1936-1937 are shown for comparison. There were 372 such students and sixty-one graduates. The total number of students for 1937-1938 was the same as for 1936-1937, but there was a decrease of twenty-three in the number of graduates this year. The only medical school for Negro youth, Meharry Medical College, matriculated 206 students and had thirty-five graduates. At Howard University College of Medicine they comprise a majority of those in attendance and for this session 121 students of a class of 131 and eighteen of the twenty-two graduates were Negroes. These two schools graduate the majority of the Negro students. All other schools (six) graduated eight. In eighteen schools in the United States, exclusive of Meharry and Howard, forty students were enrolled. There were five Negro students in two Canadian schools. The enrolment by classes in all schools was first year 126, second year 104, third year seventy-seven, and fourth year sixty-four, a total of 372, including a fifth year student in a Canadian school. In 1936-1937 corresponding figures were 130, eighty-eight, seventy, eighty-two, 372. The freshman enrolment decreased four, the sophomores increased sixteen, the juniors increased seven and the seniors decreased eighteen. A study is being made of the Negro physicians in the United States by state and county from the data included in the 1938 edition of the American Medical Directory. A total of 3,392 Negro physicians are listed in the Directory.

TABLE 17.—*Fees, 1937-1938—United States and Canada**

	Schools
Under $100	4
$100 to $200	9
200 to 300	23
300 to 400	16
400 to 500	22
500 or over	13
Total	87

* Based on fees charged resident students.

FEES

In table 17 the eighty-seven medical schools of the United States and Canada have been grouped according to the tuition fees charged. To arrive at the figures listed, an average was computed of the resident fees for each school. Included in these fees are the various minor charges, such as for matriculation, breakage, diploma and graduation. Four schools have fees under $100. These were Louisiana State University, University of North Dakota, University of Oklahoma and University of Texas. The thirteen schools having fees over $500 are College of Medical Evangelists, Yale, George Washington, Johns Hopkins, Columbia, Cornell, Long Island, New York Medical College, New York University, Syracuse, Buffalo, Hahnemann and Pennsylvania. Thirty-one schools in the United States and five in Canada made an additional charge for nonresidents ranging from $50 by the Universities of Minnesota, Mississippi, Cincinnati (nonresidents of Cincinnati) and Virginia to $300 exacted by the University of California and Louisiana State University and $425 by Harvard University.

Table 17 compared with a similar compilation in the 1937 educational statistics indicates that this year there are only twenty-three schools in the $200 to $300 bracket, whereas in 1936-1937 there were twenty-seven; likewise in the $300 to $400 group there are sixteen, as compared with fifteen for the last college

session; in the $400 to $500 bracket the figure increased one and in the $500 or over class there are now thirteen schools, an increase of two.

The lowest nonresident fee in the United States was $50, as has been indicated. One school in Canada has a nonresident fee of $5 for the first year and $10 for the second, third and fourth years. Eleven schools in the United States and Canada have a nonresident fee of $100 or less, sixteen schools between $100 and $200, six schools between $200 and $300, and one has a fee of $425.

The data and text regarding table 5 listing the number of residents and nonresidents and the definition of the term resident may be of interest in connection with the fees charged nonresidents. The fees are not listed in these statistics by individual schools other than in the descriptions beginning on page 815. The fees there given are for the session 1938-1939.

The average resident fee charged in medical schools of the United States was $342.

CITIZENS OF THE UNITED STATES ENROLLED IN FACULTIES OF MEDICINE ABROAD

A study of the number of citizens of the United States pursuing medical courses in faculties of medicine abroad has been carried on by the Council since 1931, when it became evident that great numbers were going to Europe to study. Table 18 lists the institutions in which such students are enrolled. This tabulation covers the academic year 1937-1938. In a few cases, because figures were not available, it was necessary to reproduce figures from previous sessions for several schools known to have citizens of the United States enrolled. Including these figures, there were 1,346 students and 318 graduates or those who completed their training in eighty-four institutions—seventy-eight schools in fifteen European countries, two in two South American countries and four in three countries of Asia. The files of the Association of American Medical Colleges indicate that the application record of many of these students show that they have made application

TABLE 18.—*Citizens of the United States Enrolled in Faculties of Medicine Abroad—1937-1938*

	Totals		Students, Academic Year 1937-1938	
			Enrolled	Completed Course
Argentina	**2**	**0**		
Universidad Nacional de La Plata			2**	0**
Austria	**172**	**45**		
Karl-Franzens-Universität, Graz			4	2
Leopold Franzens-Universität, Innsbruck			2	1
Medizinische Fakultät der Universität Wien			166**	42**
Belgium	**6**	**0**		
Université Libre de Bruxelles			5	0
Université Catholique de Louvain			1	0
Brazil	**2**	**0**		
Faculdade de Medicina de Parana, Curitiba			2*	0*
China	**24**	**1**		
Peiping Union Medical College, Peiping			7	0
Pennsylvania Medical School, Shanghai			17	1
Czechoslovakia	**7**	**3**		
Univerzita Komenského, Bratislava			2	0
Deutsche Universität, Prague			1	1
Universita Karlova, Praha			4	2
England	**29**	**6**		
University of Bristol			4	1
University of Durham, Newcastle-upon-Tyne			2	0
University of London				
Charing Cross Hospital Medical School			1	0
King's College			1	0
King's College Hospital Medical School			1	1
London (Royal Free Hospital) School of Medicine for Women			1	1
St. Bartholomew's Hospital Medical College			12	1
University College Hospital Medical School			1	0
University of Oxford			2*	0*
University of Sheffield			4	2
Estonia	**1**	**1**		
Université de Tartu			1	1
France	**13**	**9**		
Université de Lyon			1	1
Université de Montpellier			3*	1*
Université de Nancy			1	0
Université de Paris			7	6
Université de Strasbourg			1	1
Germany	**107**	**23**		
Friedrich-Wilhelms-Universität, Berlin			25	0
Rheinische Friedrich-Wilhelms-Universität, Bonn			12	1
Schlesische Friedrich-Wilhelms-Universität, Breslau			1	0
Medizinische Akademie Düsseldorf			1	1
Friedrich-Alexanders-Universität, Erlangen			1	1
Johann Wolfgang Goethe-Universität, Frankfurt-am-Main			4	0
Albert-Ludwigs-Universität, Freiburg			4	0
Georg August-Universität, Göttingen			2	0
Vereinigten Friedrich-Universität, Halle-Wittenberg			3**	0**
Hamburgische Universität			14	9
Universität Heidelberg			11	0
Thüringische Landesuniversitat, Jena			1	0
Christian-Albrechts-Universität, Kiel			3	0
Universität Köln			3	0
Universität Leipzig			2	0
Philipps-Universität, Marburg			1	0
Germany (continued)				
Ludwig-Maximilians-Universität, München			15	11
Westfälische Wilhelms-Universität, Münster			2	0
Universität Rostock			1	0
Julius-Maximilians-Universität, Würzburg			1	0
Greece	**18**	**0**		
National University of Athens			18*	0*
Hungary	**23**	**8**		
Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest			11	7
Magyar Királyi Tisza-István-Tudományegyetem, Debrecen			4*	0*
Magyar Királyi Erzsébet Tudományegyetem, Pecs			5	0
Magyar Királyi Ferenez József Tudományegyetem, Szeged			3	1
Ireland	**4**	**4**		
Queen's University, Belfast			1	1
University of Dublin School of Physic, Trinity College, Dublin			3	3
Italy	**212**	**47**		
Regia Università di Bologna			48	16
Regia Università di Catania			1	1
Regia Università di Genova			1	1
Regia Università di Messina			1	1
Regia Università di Modena			2	0
Regia Università di Napoli			83***	4***
Regia Università di Padova			1	1
Regia Università di Perugia			4**	2**
Regia Università di Pisa			4	0
Regia Università di Roma			67	21
Lebanon	**28**	**0**		
American University of Beirut			28	0
Poland	**16**	**0**		
Uniwersytet Cracow			3	0
Uniwersytet Poznanski			5	0
Uniwersytet Jozefa Pilsudskiego, Warszawa			3*	0*
Uniwersytet Stefana Batorego, Wilno			5	0
Scotland	**525**	**51**		
School of Medicine of the Royal Colleges, Edinburgh			226	28
University of Edinburgh			11	0
Anderson College of Medicine, Glasgow			26	15*
St. Mungo's College, Glasgow			249	4
University of Glasgow			9	1
University of St. Andrews			4	3
South Africa, Union of	**1**	**0**		
University of Witwatersrand, Johannesburg			1	0
Switzerland	**150**	**120**		
Universität Basel			30	22
Universität Bern			44	32
Université de Genève			32*	25*
Université de Lausanne			29	26
Universität Zürich			15	15
Yugoslavia	**6**	**0**		
Beogradskog Universiteta			5*	0*
Zagrebaskog Universiteta			1*	0*
Totals by countries	**1,346**	**318**		

* 1936-1937 figures. ** 1935-1936 figures. *** 1934-1935 figures.

to medical schools in the United States without success. A study is also being carried on of the license record of foreign physicians.[3]

Table 19, recording the number of graduates of foreign medical faculties (representing both American and foreign born physicians) examined by licensing boards in the United States in eight years and the percentage failing, is of interest. In addition to the figures given

TABLE 19.—*Graduates of Faculties of Medicine Abroad Examined—1930-1937*

Year	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	303	30.7
1936	588	382	35.0
1937	919	636	30.7

a number have been periodically licensed without examination—by endorsement of their credentials, which are equivalent to licensure in this country. In 1937, 238 were so registered. This table makes no differentiation between United States citizens and those foreign born. It might be assumed that some of those who began the study of medicine in 1930 are returning to the United States to practice. The figure also includes many refugees from Germany and Austria.

ity of new students going abroad to study are migrating to these two institutions. Fifty-three of the eighty-four institutions listed had less than five students. During 1937-1938, according to the reports furnished, there were 1,346 students as compared with 1,631 during 1936-1937, 2,052 in 1932-1933 and 710 in 1930-1931.

Conferences with the governments of many European countries together with resolutions by the Council and the Federation of State Medical Boards have resulted in a diminution in the number of American born students being accepted by European schools.

The House of Delegates of the American Medical Association in 1936 endorsed a resolution urging that graduates of medical faculties of other countries be expected to prove their fitness for medical practice by being in possession of a license to practice in the country of their graduation and a certificate of internship in a hospital approved for such training or complete the fourth year in an American class A medical school.

In 1938 the House of Delegates adopted a resolution urging an additional requirement of full citizenship in the United States of all applicants from abroad. Several of the licensing boards in the United States have adopted special rules regarding the admission of physicians with foreign degrees because no agency exists for the evaluation of such credentials. One state has amended its statute requiring foreign graduates to complete a year in a medical school or serve a hospital internship in this country. A few others have board

TABLE 20.—*Citizens of the United States Enrolled in Faculties of Medicine Abroad—1930-1938*

	1930-1931		1931-1932		1932-1933		1933-1934		1934-1935		1935-1936		1936-1937		1937-1938	
	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course
Argentina	..	..	..	..	..	..	..	..	..	..	2	0	2	0	2	0
Austria	114	3	175	6	271	3	253	9	235	6	183	45	185	54	172	45
Belgium	3	0	4	1	10	1	11	0	19	3	15	3	13	1	6	0
Brazil	..	..	..	..	..	..	2	1	1	0	1	0	2	0	2	0
China	..	..	..	..	12	0	15	0	18	1	19	1	18	1	24	1
Colombia	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..
Czechoslovakia	2	0	4	0	19	0	7	0	10	0	11	3	13	4	7	3
Dominican Republic	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..
England	52	2	61	4	57	1	69	4	78	20	60	30	47	17	29	6
Estonia	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	1
Finland	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..
France	25	2	62	6	78	5	86	2	89	4	75	4	40	14	13	9
Germany	72	1	189	5	439	42	331	8	246	25	204	28	245	109	107	23
Greece	..	..	..	..	4	1	9	0	13	0	15	0	18	0	18	0
Hungary	9	1	15	2	13	1	25	1	23	0	12	0	27	4	23	8
Ireland	14	1	21	0	20	0	4	1	6	1	7	4	7	2	4	4
Italy	78	11	155	4	282	14	258	25	286	30	265	65	265	65	212	47
Japan	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..
Lebanon	16	2	8	0	7	0	11	2	13	2	15	3	19	0	28	0
Lithuania	..	..	4	0	4	0	2	0	2	0	2	0	2	0	..	..
Mexico	1	0	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Netherlands	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..
Netherlands Indies	..	..	..	..	1	0	1	0	1	0	..	..	2	0	..	..
Poland	2	0	3	0	9	0	14	4	12	1	9	1	14	1	16	0
Portugal	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..
Scotland	256	19	286	25	416	9	444	48	476	71	369	48	386	80	525	51
South Africa, Union of	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0
Spain	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..
Switzerland	65	4	214	1	405	10	351	8	396	54	366	98	316	143	150	120
Yugoslavia	..	..	2	1	5	1	7	0	11	0	7	0	6	0	6	0
Totals	710	46	1,206	56	2,052	88	1,903	113	1,937	218	1,637	333	1,631	495	1,346	318

The enrolment of students in foreign countries for each session since 1930-1931 is shown in table 20. The largest numbers were enrolled in Austria, Germany, Italy, Scotland and Switzerland. The greatest number (249) in any one school was the enrolment of St. Mungo's College Medical School, Glasgow, followed by the School of Medicine of the Royal Colleges, Edinburgh, where 226 were enrolled. These are extramural schools and do not grant the M.D. degree. The major-

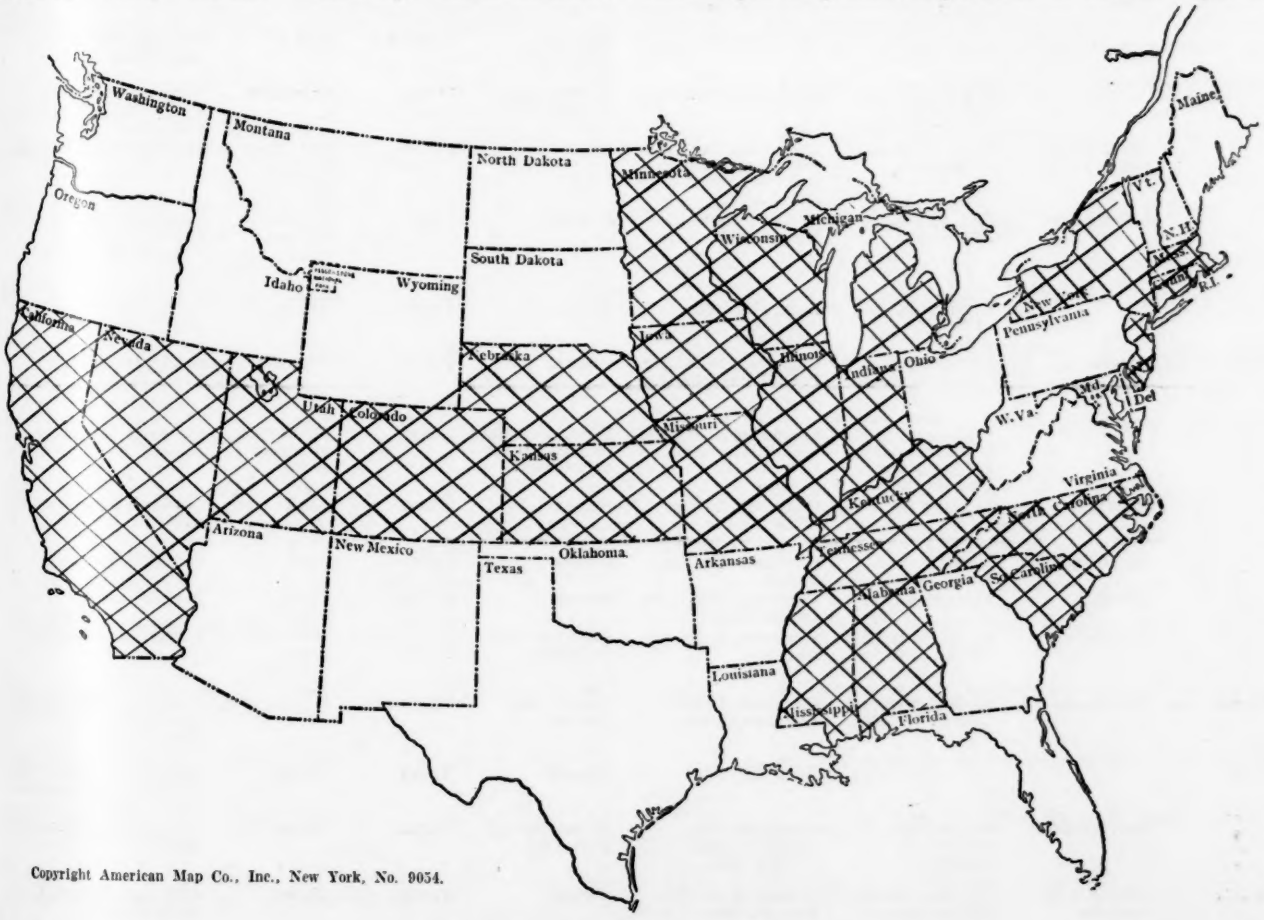
rulings requiring one or the other of these, several require citizenship, one state will not accept any graduates of foreign schools, and another requires the certificate of the National Board of Medical Examiners. Further, in order to maintain approval by the Council, hospitals in which these students seek internships may accept them only on the successful completion of parts I and II of the examinations of the National Board of Medical Examiners, and when suitable graduates of American schools are not available.

3. J. A. M. A. **110**: 1363 (April 23) 1938.

GRADUATE MEDICAL EDUCATION

Preliminary Report of Extension Courses Designed for Practicing Physicians in Twenty-Three of Twenty-Four States Visited

In February 1936 the Council on Medical Education and Hospitals voted to undertake a survey of graduate medical education. In May the House of Delegates of the American Medical Association approved of the Council's proposed fact finding study. The Board of Trustees in February 1937 authorized additional personnel so that field investigations might begin. From October 1937 to July 1938 twenty-four states were visited and the opportunities for practicing physicians to engage in further training were examined. The following states have been included in this study to date: Alabama, California, Colorado, Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New York, North Carolina, Rhode Island, South Carolina, Tennessee, Utah and Wisconsin. Subsequent reports will consider the graduate programs of other states.



Copyright American Map Co., Inc., New York, No. 9054.

States visited from October 1937 to July 1938.

ORGANIZATION

State medical associations, including their component societies, district organizations and academies of medicine, were wholly or partly responsible for directing sixty-three graduate courses. Medical or graduate schools were active in directing twenty-three programs, departments of health sixteen, and other agencies four. Medical societies and academies of medicine seemed to have greater interests in and to have assumed greater responsibilities for continuing the training of physicians than all other agencies in this field.

In twenty-one of twenty-four of the states studied the state medical associations have one or more committees devoted to medical education, and in twenty states the committee chairmen actively directed all or some of the graduate courses in their respective states. In others the chiefs and the directors of bureaus of maternal and child health and of departments of child hygiene of state boards of health shared this responsibility.

In fourteen states the state committees concerned with graduate training were represented by various medical and health agencies so that the resources and personnel of medical and other educational institutions might be pooled, duplication of efforts might be avoided, and professional training programs might be correlated.

Graduate instruction has proceeded on a permanent basis (five or more years) in sixteen states. Impetus has been provided during the past three years with federal financing of professional training in five other states, and two states which have secured private aid apparently are developing permanent programs.[1] Five of eighteen states now functioning permanently have been materially aided by federal funds. Almost without exception all programs were cooperative with component medical societies, medical schools, boards of health, academies of medicine and various medical and health agencies participating. University extension divisions

(Continued on page 808)

1. Commonwealth Fund of New York.

GRADUATE MEDICAL
Opportunities for Practicing Physicians to Engage in

State	Location of Course	Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction
Alabama	Birmingham, Montgomery, Mobile and Co. societies	State Med. Assn. and Dept. of Pub. Health	Chairman, Comm. on P. G. Study, State Med. Assn.	Internal Medicine, Obstetrics, Pediatrics, Preventive Medicine and Syphilology	Varies	Varies	Lectures and Demonstrations
California	7 cities and towns	State Med. Assn. and other medical and health agencies	Chairman, Comm. on P. G. Activities	General	Varies	Spring and Fall	Conference, Symposium, Clinics and Demonstrations
	Stockton	San Joaquin Co. Med. Soc.	Chairman, Graduate Comm.	General	1 day weekly 7 times	Fall	Lectures and Clinics
	San Bernardino	San Bernardino and Orange Co. Med. Socs.	Chairman, Grad. Study Comm.	General	1 day monthly 6 times	Winter	Lectures and Clinics
	12 cities and towns	State Dept. Pub. Health and State Med. Assn.	Director, State Dept. Pub. Health	Syphilology	1 day	Spring	Lectures
	San Francisco	U. Calif. Med. Sch.	Dean, Med. Sch.	Digestive Diseases	3½ days	Spring	Lectures, Discussions and Clinics
		Stanford U. Sch. Med. and City Dept. of Health	Dean, Med. Sch.	General and Special	1 week	September	Lectures, Discussions, Clinics and Laboratory Experience
	San Francisco and Los Angeles	Calif. Heart Assn. (2 chapters)	Secretaries, San Francisco Heart Comm. and Los Angeles Heart Assn.	Heart Disease	2 days	November (in S. F.) January (in L. A.)	Symposiums and Clinics
	Los Angeles	Coll. of Med. Evangelists	Chairman, Alumni Educ. Comm.	General	1 day	Fall and Spring	Graduate Assembly (Fall), Clinics and Symposiums (Spring)
		U. So. Calif. Sch. of Med.	Dean, Med. Sch.	Varies	Varies	Varies	Informal graduate instruction
Colorado	Denver	State Med. Soc.	Chairman, Midwinter P. G. Clinics Comm.	General	3 days	December	Graduate Assemblies with Clinics
		State Socs. of Colorado, Utah, Wyoming and New Mexico	Chairman, Rocky Mt. Med. Conference Exec. Comm.	Diseases common to Rocky Mountain states	3 days	Summer of alternate years	Graduate Assembly with Round Table Discussions
	Pueblo	Co. Med. Soc.	Chairman, Spring Clinics Comm.	General	2 days	April	Graduate Assembly with Clinics
	Grand Junction	Mesa Co. Med. Soc.	Chairman, Co. Soc. Comm.	General	1 day	April	Graduate Assembly
	18 towns	State Med. Soc.	Chairman, Comm. on Cancer Educ.	Cancer	1-3 days	Varies	Symposiums
	4 towns	St. Bd. of Health and St. Med. Soc.	Secretary, St. Bd. of Health	Obstetrics and Pediatrics	1 day weekly 5 times	March and April	Lectures and Clinics
Connecticut	New Haven	St. Med. Soc. and Yale U. Sch. Med.	Chairman, Clinical Congress Comm.	General and Special	3 days	September	Lectures, Bedside Clinics, Symposiums and Discussions
			Dean Med. Sch.	General	Varies	Varies	Lectures, Bedside Clinics, Symposiums, Discussions and C. P. C.'s
	Various towns	St. Med. Soc. and St. Dept. of Health	Chairman, Pub. Health Comm., St. Med. Soc.	Obstetrics and Pediatrics	Varies	Varies	Lectures and Demonstrations
Illinois	Offered in 90 counties	Sci. Serv. Comm., St. Med. Soc.	Chairman and Secretary, Sci. Serv. Comm.	General	Varies	Varies	Lectures, Clinics and Symposiums
	Chicago and 11 Councilor Districts	St. Dept. Pub. Health, St. Med. Soc. and U. Ill. Coll. Med.	Chairman, Advisory Comm. to St. Dept. of Public Health	Obstetrics and Pediatrics	1 day biweekly or monthly 4 to 6 times	October to April	Lectures
					Daily for 1 week repeated 7 times	Summer	Lectures, Round Table Discussions, Clinics, Ward Walks, Manikin Demonstrations and Delivery Service
Indiana	Indianapolis	St. Med. Assn. and St. Univ. Med. Sch.	Chairman, Comm. on Grad. Med. Educ. of St. Med. Assn.	General	5 days	May and June	Lectures, Clinics, Demonstrations, Panel Discussions and C.P.C.'S
	54 cities and towns	St. Bd. of Health	Chief, Bureau Mat. and Child Health	Obstetrics, Pediatrics and others	Varies	Varies	Lectures and Demonstrations
	10 T. B. Sanat.	T. B. Assn.	Exec. Secretary	Tuberculosis	1 day	September to November	Clinics, Demonstrations and Round Table Discussions
Iowa	8 towns and Med. Coll.	St. Med. Soc. and St. Univ. Med. Coll.	Chairman, Speakers' Bureau, St. Med. Soc.	Choice from St. Soc. List	1 day a week or month, 5 to 8 times	Spring and Fall	Lectures and Clinics

EDUCATION

Extension Training in 23 of 24 States Visited to Date *

Meeting Places	Instructors	Admission Requirements	Limitation of Classes	Registration Fee	Approximate Yearly Attendance	Miscellaneous Information
Varied	Out of state, in state and local M.D.'s	M.D.	No	No	680 (Annual Meeting)	Extension of graduate program projected to supplement training now being given; financed jointly by Med. Assn. and Dept. of Public Health
Hospital or Hall	Med. Sch. faculty members and in state and local M.D.'s	Co. Med. Soc. Membership	No	No	950	Budget for current year estimated at $4,000; 300 physicians in state available as instructors
Hospital or Hall	1 out of state M.D., Med. Sch. faculty members and 11 in state M.D.'s	Co. Med. Soc. Membership	No	$5	50	$25 prize offered for best written review of course
Varied	In state M.D.'s	M.D.	No	No	...	
Hall	Out of state univ. prof.	Co. Med. Soc. Membership	No	No	..	Financed by State Dept. Pub. Health. Also series of 10 lectures on venereal diseases at U. Calif. Hosp. in San Francisco
Univ. Hosp.	Faculty members (22)	M.D.	No	$20	40	Fee included meals and syllabus of lectures. State medical library with 2 sections offers package service to practicing physicians
Hospitals	Approximately 50 faculty members	M.D.	In Lab. and Ward Rounds 15 to 24	$25	160	A physician may register for 1 morning and 1 afternoon course
Hosps. and Med. Schools	In state and local M.D.'s and faculty members	M.D.	Study groups from 5 to 10	$10-15 (S. F.) $2 (L. A.)	300	Fee includes cost of syllabus and membership in the Assn.
Med. College	Faculty membs. of 3 Med. Schs. give Fall Assemb. and 30 from Coll. Med. Evan. give Spring Clinics	M.D.	No	$1.50	400-500	Exhibits, demonstrations and clinical pathologic conferences feature the Spring Clinics
Med. Sch.	Faculty members	M.D.	Yes	Varies	...	Opportunities for study in anatomy and other basic sciences
Hospitals, Med. Sch. and Hotel	Out of state, in state and local M.D.'s (Total approx. 40)	M.D.	No	$2	245	St. Med. Soc. and St. Univ. Sch. of Med. jointly support. Denver Co. Med. Soc. and St. Med. Soc. maintain library for physicians in Denver
Hotel and Theater Auditoriums	Out of state M.D.'s (20)	M.D.	No	$3	700	Next meeting (1939) to be held in Utah—subsequent meetings in other states
Hospitals	Out of state, in state and local M.D.'s (20)	M.D.	No	$2	165	St. Med. Soc. and 4 local hospitals jointly support; Colo. St. Hosp. staff meets 1-4 times mo. for C. P. C.'s and reviews of neuropsychiatric exams. and treatment
Hotel	In state and local M.D.'s	M.D.	No	..	50	St. Med. Soc. jointly sponsors
Hospitals or Halls	In state M.D.'s	Co. Med. Soc. Membership	No	No	....	Instruction voluntary; handbook on diagnosis and treatment in preparation
Hospitals or Halls	In state and out of state univ. profs. (6)	M.D.	No	No**	115	Physicians in 11 counties in northern and northeastern Colorado enrolled
Univ. buildings and hospitals	In state and out of state M.D.'s and faculty members	M.D.	No	$2	695	12 states represented; a permanent record system has been developed; 12 chairmen of symposiums in 1937
Univ. hosps.	Faculty members	M.D.	Yes	No	...	No formal p. g. courses; opportunities available for physicians of Conn.
Hospitals	In state and local M.D.'s	M.D.	No	No**	50	A monthly series of lectures on heart disease given in Fairfield Co. 1938
Co. Soc. choice	300 in state M.D.'s and univ. faculty members	Co. Med. Soc. Membership	No	No	..	Financed by St. Med. Soc.; teams of 3 to 6 M.D.'s available to any Co. Soc. on request
Co. Soc. choice	In state M.D.'s	M.D.	No	No**	..	Clinical instruction given in Chicago supplements short lecture courses arranged by field organizer, with Speakers' Bureau of St. Med. Soc. completing arrangements. A.M.A.'s Med. Libr. available to individual subscribers of A. M. A. publications; p. g. courses in urology and cardiovascular-renal disease offered in Aug. and Sept. annually by Northwestern U. Med. Sch.
Research and Educational Hospital, Chicago	Faculty members of approved med. schs.	M.D.	18 each wk's. class	$10**	65	
Univ. Med. Sch. and Hotel	Out of state, in state and local M.D.'s (6 out of state M.D.'s)	M.D.	No	No	500	Financed jointly by Univ. and Med. Assn.; facilities of medical school, including package medical library available to physicians; 2 wk. intramural courses offered by Univ. Dept. Obs. during 9 mos. of yr. (resident facilities for physicians)
Varied	Out of state and in state M.D.'s	M.D.	No	No**	...	Speaker's program prepared by Bureau of Maternal and Child Health of St. Bd. of Health; dir. of p. g. obs. education conducts circuit courses in Dist. Med. Socs.
Hospitals	Out of state and local M.D.'s	M.D.	Small groups	No	200	One week course in Indianapolis attended by 12 physicians and financed by T. B. Assn.
Hotels and St. Univ.	Out of state, in state and univ. M.D.'s (Choice by vote of registrants)	St. Med. Soc. Membership	No	$5, $10	450	Financed by St. Med. Soc.; state med. libraries at Des Moines and Iowa City with package medical service

GRADUATE MEDICAL
Opportunities for Practicing Physicians to Engage in

State	Location of Course	Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction
Iowa (cont'd)	8 towns	St. Dept. Health and St. Med. Soc.	Chairman, Speakers' Bureau, St. Med. Soc.	Obstetrics and Pediatrics	1 day weekly 8 times	March, April and November (1937-38)	Lectures
Kansas	30 towns	St. Med. Soc. and St. Bd. of Health	Comms. of St. Med. Soc. and Secy., St. Bd. of Health	Obstetrics, Pediatrics, Syphilology, Cancer and T. B.	1 day weekly 4 times	June to September	Lectures
	Kansas City and Lawrence	St. Univ. Med. Sch.	Dean, Med. Sch.	General	3 days	Spring	Lectures, Clinics, Ward Walks
Kentucky	8 councilor districts (incl. Louisville)	St. Med. Assn.	Chairman, Comms. on Extension Course and	General and Pediatrics	Day and evening	Varies	Lectures
			P. G. Course in Dis. of Children	Pediatrics	1 day weekly 10 times	April	Lectures, Conferences and Clinics
	Louisville	Jefferson Co. Med. Soc. and Univ. Louisville Sch. Med.	President, Co. Med. Soc.	Physiology and General	Twice monthly over 6 months	February to June	Lectures and Demonstrations
		Univ. Louisville Sch. Med. Alumni Assn.	Dean, Med. Sch.	Obstetrics, Pediatrics, Surgery Chest Dis. and Psychiatry	3 days	June	Clinics, Ward Rounds and Group Discussions
Massachusetts	18 cities and towns	St. Med. Soc. and St. Dept. Pub. Health	Secretary, Exec. Comm. P. G. Instruc., St. Med. Soc.	Obstetrics, Therapeutics, Pneumonia, Scarlet Fever, Heart Dis., Rheumatic Fever, Syphilis, Gonorrhea, etc.	1 day weekly 8 to 10 times	January to May	Lectures, Demonstrations and Clinics
	Boston	Harvard Univ. Med. Sch.	Asst. Dean, Courses for Gradautes	General and Special	Varies	Varies	Various types
		New England Med. Center (Tufts Coll. Med. Sch.)	Director, Postgraduate Courses	Medicine, Pediatrics, Obstetrics, Gynecology and Special	1-4 weeks	Varies	Lectures, Clinics, Ward Rounds and Clinical Conferences
Michigan	Detroit, Ann Arbor and 12 other cities and towns	U. Mich. Med. Sch., Wayne U. Coll. Med. and St. Med. Soc.	Chairman, Advisory Comm. on P. G. Educ., St. Med. Soc.	General and Special	1 week and 4 to 8 weeks or longer	Spring and Summer	Preclinical and Clinical
				General review of undergraduate curriculum	1 day weekly 8 times	Fall (series over 4 yrs.)	Clinical, with cases and informal discussions
	9 towns and cities	State Dept. of Health	Chairman, Adv. Comm. P. G. Educ. St. Med. Soc. and Dir., Bur. Mat. and Ch. Health, St. Dept. Health	Obstetrics and Pediatrics	1 day weekly 6 times	Summer and Fall	Lectures
Minnesota	Minneapolis	Dept. P. G. Educ. U. Minn.	Director	Choice from list supplied	1 week	Varies	Lectures, Seminars, Demonstrations, Clinics and Ward Experience
	6 towns	St. Med. Assn. and Univ. Ext. Div.	Director, Ext. Div.	Choice from St. Assn. and Univ. list	1 day weekly 8 times	Varies	Lectures, Clinics and Demonstrations
	Minneapolis and 6 towns	St. Dept. Health and St. Med. Assn.	Director, Div. Child Hygiene	Obstetrics and Pediatrics	1 day weekly 4 to 6 times	May and June	Lectures and Demonstrations
Mississippi	50 towns	Div. of Med. Ext. Tulane U. of La.	Dir. of Med. Ext. Tulane U. of La.	Obstetrics, Pediatrics and Syphilology	1 day weekly 5 to 10 times	Varies	Lectures, Clinics, Demonstrations and Consultations
	Jackson	Central Med. Soc.	Secretary	General	Day and evening	Sept. (1937) June (1938)	Lectures and Round Table Discussions
Missouri	26 counties and councilor districts	St. Med. Assn.	Chairman, P. G. Comm.	Appendicitis, Tumors, etc.	Day or evening	Varies	Lectures and Demonstrations
	41 cities and towns	St. Bd. Health and St. Med. Assn.	Director, Dept. of Child Hygiene, St. Bd. Health	Preventive Obstetrics and Pediatrics	1 day 2 times	Varies	Lectures and Demonstrations
	Kansas City	Jackson Co. Med. Soc.	Chairman, Comm. Med. Educ.	Preclinical and Clinical, incl. physical and laboratory diagnosis	1 day weekly 4 to 20 times	Fall and Spring	Tumor Clinics, Lectures and Demonstrations
		Kansas City S. W. Clinical Soc.	Director of Clinics	General	2 and 4 days	Spring and Fall	Graduate Assembly
	St. Louis	St. Louis Clinics	Secretary, Board of Directors	General	6 days	May	Graduate Assembly
		Washington U. Sch. Med.	Chairman, Faculty Comm. on Grad. Instr.	Obstetrics-Gynecology,	4 weeks	June and July	Lectures, Demonstrations, Clinics, Experience with Patients
				Heart Diseases	2 weeks	May	
		St. Louis U. Sch. Med.	Dean, Sch. of Med.	Surg. Anat., Phys. Diag., Clin. Microscopy	1 month	Summer	Lectures, Laboratory and Clinic
	St. Joseph	St. Joseph. Clin. Soc.	Secretary	General	2 days	Spring	Lectures
	Joplin	Jasper Co. Clin. Soc.	Secretary	General	1 day	Spring	Lectures
Nebraska	30 towns in 9 councilor districts	St. Med. Assn. and Dept. of Health	Chairman, Speakers' Bureau, St. Med. Assn.	Obstetrics and Pediatrics	3 to 16 days in each dist.	Throughout year	Lectures, Manikin Demonstrations and Movies

EDUCATION—Continued

Extension Training in 23 of 24 States Visited to Date *

Meeting Places	Instructors	Admission Requirements	Limitation of Classes	Registration Fee	Approximate Yearly Attendance	Miscellaneous Information
Hotels, Hospitals and Schools	In state and univ. M.D.'s	M.D.	No	$2**	345	St. Dept. of Health cooperates with T.B. Assn. in T.B. case finding studies and with St. Univ. in crippled children's program
Varied	Out of state and in state M.D.'s	M.D.	No	No**	855	St. U. Ext. Div. assisted in registering physicians for courses; annual meeting of St. Med. Soc. devoted in part to grad. instr., average attendance 750
Med. Sch. and Univ.	Out of state M.D. and faculty members	M.D.	75	No	75	Supervised clinical clerkships for 1 week projected
Available Auditoriums	In state M.D.'s	Co. Med. Soc. Membership	No	No	..	St. Bd. of Health, on request, furnishes programs on T.B., syphilis, pediatrics or obstetrics to county societies or councilor districts
Children's Free Hospital	11 local M.D.'s	M.D.	Yes	$5	20	
Louisville City Hospital	Faculty members and local M.D.'s	Co. Med. Soc. Membership	No	No	160	Co. Soc. deposits books and periodicals and helps maintain Univ. Louisville Med. Sch. Library
Louisville City Hosp. and Univ. Clinics	Faculty members	M.D.	No	No	6	Two months postgraduate course for Negro physicians with supervised clinical experience in Univ. Clinics and wards; 8 accepted in medicine, pediatrics or obstetrics
Hospitals	56 M.D.'s of univ. faculties and in state M.D.'s	M.D.	No	No**	710	District medical societies choose subjects from list supplied; 5 divisional chairmen in charge of instruction; financed partly by St. Med. Soc.; Boston Med. Library is the home of Mass. Med. Soc.; library dues are $15 per year
Med. Sch. and affiliated hospitals	Faculty members	M.D.	Yes	Yes (Varies with subject chosen)	..	Commonwealth Fund of New York subsidizes applicants approved on their merits for specially arranged courses
Med. Sch. and affiliated hosps. and clinics	Faculty members	St. Med. Assn. Membership	Yes	$5	Varies	Bingham Associates Fund now offers fellowships to practicing physicians of Maine
Univ. hospitals and labs.	Faculty members	M.D.	Yes (Preclin. courses)	$25 per mo. for special courses	485	Spring review courses of extramural fall instruction given; no fees; lecture notes published and available to registrants at $1 per volume. Extramural courses accessible to majority of physicians in state. Out of state physicians may attend intramural courses given at Ann Arbor and Detroit; financed jointly by Univ. Mich., St. Med. Soc., St. Dept. of Health. At Detroit: Noonday Study Club weekly; annual 3 day lectures and cooperative programs with local hospitals sponsored by Wayne Co. Med. Soc.; County Society library maintained, in part, at Wayne Univ. Coll. Med.
Hospitals	Faculty members and in state M.D.'s (Approximately 75 instructors)	M.D.	No	No	1,805 (Total)	
Hospitals when available	In state M.D.'s	M.D.	No	No**	315	
Study center, Univ. controlled Wards and Clinics	Faculty members, in state and out of state M.D.'s	Co. Med. Soc. Membership	15 to 25 (Accommodations for 78)	$25	200	350 faculty appointments for 16 weekly institutes; since started 412 M.D.'s registered; out of state physicians may attend; Commonwealth Fund aids
Hospitals when available	Faculty members and in state M.D.'s	M.D.	No	$1 to $5	200	Intramural night courses in prev. med., T.B., x-ray diag. and allergy given once weekly for 8 or 17 weeks; fees $5 and $10 respectively; 56 registered
Univ. Med. Sch. and Hotels	Faculty members and in state M.D.'s	M.D.	No	No**	325	35 faculty members conducted first series of lectures on University campus
Available halls	Univ. professors	M.D.	No	$3 to $5	620	Commonwealth Fund, St. Med. Assn., St. Bd. Health jointly finance; Miss. Hosp. Assn. also cooperates; a field organizer and field clinicians are engaged
Hotel	Univ. faculty	M.D.	No	....	400	9 faculty members U. Tenn. Coll. Med. in 1937 and 15 from Tulane U. Sch. Med. in 1938 participated in meetings. Med. libr. serv. by St. Bd. Health, Jackson
Hospitals or Halls	Faculty members and in state M.D.'s	St. Med. Assn. Membership	No	No	....	County societies may request speakers on any subject—usually those of current interest chosen; financed by St. Med. Assn.
Hospitals or Halls	Full time univ. profs.	M.D.	No	No**	560 (1936-7)	Program to continue until physicians in all sections of state offered courses
Kansas City General Hosp.	Co. Soc. members (19)	M.D.	No	$2 to $10	Not yet available	County Medical Society maintains medical library in Kansas City General Hospital; course in psychoanalysis and a medical speakers clinic also included
Municipal Auditorium	Out of state and local M.D.'s	M.D.	No	$5	300 and 1,000	Exhibits aid in financing; Kansas City Medical Journal publishes papers read annually; 250 M.D.'s are society members
Med. Schs. and Halls	Local M.D.'s	M.D.	No	$10	205	141 members of Clinical Society conduct the clinics
Univ. Clinics and Hospitals	Faculty members	M.D.	25 15	$100 $50	...	Registrar accepts applications accompanied by $10 registration fees
St. Mary's Infirmary	Med. Sch. faculty	M.D. (Negro)	50	No	50	Arrangements for informal instruction may be made on request to Dean, Med. Sch.
.....	.....	M.D.	.....	No	....	
.....	.....	M.D.	....		....	
Varied	Out of state and in state M.D.'s	M.D.	No	No**	....	St. Med. Assn.'s Central Advisory Comm. now correlates all grad. activities in state; 100 Nebraska physicians available for teaching; St. Dept. of Health cooperates

GRADUATE MEDICAL
Opportunities for Practicing Physicians to Engage in

State	Location of Course	Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction
Nebraska (cont'd)	Omaha	Omaha Mid-West Clinical Soc.	Director	General	5 days	October	Lectures, Clinical Conferences, Discussions and Exhibits
		St. Dept. Health and St. Med. Assn.	Director, Div. Mat. and Child Health, St. Dept. of Health	Obstetrics, Gynecology, Pediatics	2 weeks	July	Lectures, Clinics and Lab. Demonstrations
New Jersey	11 towns	St. Med. Soc. and Ext. Div. Rutgers Univ.	Chairman, Comm. on P. G. Educ., St. Soc.	Co. Society's own choice	1 day weekly 6 times	Spring	Lectures
	4 towns	St. Health Dept. and St. Med. Soc.	Exec. Secretary, St. Med. Soc.	Preventive Pediatrics	1 day weekly	Spring	Lectures
	Newark	St. Med. Soc., Essex Co. Soc., Newark Hosps.	Chairman, Clin. Conference	General	2 days	October	Demonstrations and Clinics
New York (state only—excluding metropolitan areas)	41 cities and towns	St. Med. Soc.	Chairman, Comm. on Med. Educ.	General and Obstetrics	1 day weekly 5 to 8 times	Varies	Lectures, Clinics and Demonstrations
	Onondaga, Erie, Monroe and other counties	St. Med. Soc. and Hospitals or Med. Schools	Secretary, Local Co. Med. Soc.	Exams. of Blood, Nervous System, Anus and Rectum	3 to 4 2 hour sessions a week	Varies	Practical Experience with Patients
	48 counties	St. Dept. Health and St. Med. Soc.	Chairman, Comm. on Med. Educ., St. Med. Soc.	Pneumonia	1 day	Varies (1936 to 1938)	Lectures, Clinics, Demonstrations and Conferences
New York (metropolitan areas)	Buffalo	Buffalo Med. Sch., City, Children's and Gen. Hospitals	Chairman, Comm. on P. G. Courses, Med. Sch.	General	2 weeks	September	Practical Clinical Work
	Brooklyn	Med. Soc. Co. Kings and Long Island Coll. Med.	Chairman, Joint Comm. on P. G. Educ.	General and Special	1 day weekly 8 times; 4-10 hrs. wk. for 1-6 mos.	Spring and Fall	Bedside Instruction, Clinics and Lectures
	County of New York	N. Y. Acad. Med.	Chairman, Comm. on Med. Educ., Acad. Med.	General (Symposium)	2 weeks	Fall	Graduate Assembly with Clinics and Demonstrations
		also cooperating with:		General (Friday afternoon series)	1 day weekly 20 times	Winter and Spring	Lectures
		Med. Soc. Co. New York		Obstetrics	1 day weekly 8 times	Spring	Lectures
		N. Y. Heart Assn.		Heart Disease	1 day every 1 to 2 wks. 12 times	Winter and Spring	Lectures
		Commissioner of Health, N. Y. C.		Syphilology	1 day weekly 7 times	February and March	Lectures and Demonstrations
		N. Y. Diabetes Assn.		Diabetes Mellitus	1 day weekly 6 times	January and February	Lectures
	County of Queens	Med. Soc. Co. of Queens	Chairman, Comm. on Grad. Educ.	General	Twice monthly 15 times	Throughout year	Lectures
	Greater New York	N. Y. C. Dept. of Health and 5 Co. Med. Socs.	Chairman, Subcomm. Professional Educ., Dept. Health	Pneumonia	½ day (22 places)	Spring	Lectures, Clinics and Demonstrations
	New York City	Dept. of Health	Director, Bureau of Social Hygiene	Syphilis and Gonorrhea	3 to 6 mos.	Throughout year	Clin. and Lab. Training, Treatment Experience
		Columbia U. Coll. of Phys. & Surg.	Director, N. Y. P.-G. Med. Sch. and Hosp.	General and Special	1 to 2 weeks and longer periods	Throughout year	Clin. and Lab. Training and Treatment Exper. in Outpatient Clinics chiefly
		New York U. Coll. of Med.	Dean, Coll. of Med.	General and Special	Varies	Varies	Varies
		New York Polyclinic Med. Sch. and Hosp.	Medical Executive Officer	General and Special	2 weeks to 9 months	Throughout year	Lectures, Demonstrations, Clinics, Laboratory Training
North Carolina	5 cities and towns	Med. Sch. and Ext. Div., U. N. Car.	Chairman, Central Organization Comm.	General (choice of local comm.)	1 day weekly 7 times	Spring and Fall	Lectures and Clinics
	Banner Elk	St. Med. Soc.	Chairman, Comm. on P. G. Study	General	2 days	August	Lectures and Clinics
	Durham	Duke U. Med. Sch.	Dean, Med. Sch.	Gynecology, Obstetrics and Pediatrics	3 days	October	Graduate Symposium; Lectures, Clinics, Bedside Instruction
	Wake Forest	Wake Forest Coll. Sch. Med. Science	Chairman, Comm. on Cancer, St. Med. Soc.	Tumors	2 days	April (1934 and 1938)	Symposium and Clinic
	11 cities and towns	St. Bd. Health and St. Med. Soc.	Director, Div. Prev. Med., St. Bd. Health	Obstetrics	1 day weekly 5 times	Fall and Spring (1935-6)	Lectures
	Saluda	So. Pediat. Seminar	Secretary	Pediatrics	3 weeks	Summer	Lectures and Clinics
Rhode Island	Providence and 3 towns	St. Dept. Pub. Health	Chief, Bureau of Child Hygiene	Obstetrics and Pediatrics	1 day weekly 5 times	Summer and Winter	Lectures and Demonstrations
South Carolina	20 cities and towns	St. Bd. of Health	Director, Div. of Child and Maternal Hygiene	Obstetrics	1 day weekly 6 times	Summer and Fall	Lectures, Round Table Discussions and Clinics
	Anderson	Piedmont P. G. Clinical Assembly	President, Clinical Assembly	Medicine, Pediatrics, Surgery	3 days	September	Lectures

EDUCATION—Continued

Extension Training in 23 of 24 States Visited to Date *

Meeting Places	Instructors	Admission Requirements	Limitation of Classes	Registration Fee	Approximate Yearly Attendance	Miscellaneous Information
Hotel	Out of state and local M.D.'s	M.D.	No	$5	670	125 local M.D.'s are society members, many being on faculties of the two local medical schools. Med. libr. serv. for physicians maintained at U. Nebraska
U. Nebr. and St. Joseph Creighton Mem'l Hospital	21 members of 2 Med. Sch. faculties	M.D.	10	No**	....	Includes round table discussions and mimeographed copies of lectures and demonstrations; 2 courses each year; T. B. case finding study with educational features in 5 cos.
Varied	Out of state univ. profs.	Co. Med. Soc. Membership	No (for 25 or more)	$10	385	C.P.C.'s in Newark City Hosp., average attendance 100 M.D.'s; T.B. institutes yearly in Hudson Co. and occasionally elsewhere
Varied	Out of state and in state M.D.'s	M.D.	No	No**	500	Health Dept.'s field physicians offer informal instruction to practicing physicians
Hospitals	Hospital staffs	M.D.	No	No	Not yet available	Annual Clinical Conference
Hospitals and Halls	Med. Sch. faculty and in state M.D.'s	M.D.	No	No	2,000	St. Med. Soc. appropriated $5,000 for grad. med. ed. during 1937-38; 5 obstetric courses financed by St. Dept. of Health
Hospitals or Med. Schools	Med. Sch. faculty or hospital staff members	M.D.	Groups of 4 to 6 each	Varies	....	Personal instruction in EKG and other subjects given at Syracuse, small groups instructed by professional teacher
Hospitals, Med. Schools or Halls	Med. Sch. faculty or hospital staff members	M.D.	Yes (Institutes)	No	375 (at Med. Centers)	Financed by St. Dept. Health which reimbursed registrants' travel and hotel expenses to medical center for 1 day "institutes"; estimated 5,400 attended over 2½ yrs. throughout the state
Med. School and Hospitals	55 faculty and guest M.D.'s	M.D.	Groups of 5 each	$50	55	Medical school allots $1,500 annually; library facilities open to physicians
Med. Soc. Audit., Med. Coll. Hosp. and Local Hosps.	Med. Coll. faculty and in state M.D.'s	M.D.	Short courses not limited; intensive long courses limited	$0 to $10 and $20-$100	175	Med. Soc. and Acad. Med. Library maintained for local physicians; Friday afternoon lectures on general subjects at Co. Med. Soc. building 1 day weekly for 20 times; special courses available at L. I. Coll. of Med.
Academy Bldg. and 18 hosps.	Out of state and in state M.D.'s	M.D.	No	$3	500-800	Members demonstrate scientific exhibit; two thirds of registrants from Greater N. Y.; 17 states represented; all other Acad. activities without charge. Acad. cooperates with many medical and health agencies concerned with medical education in New York City
Academy Auditorium	Out of state and in state M.D.'s	M.D.	No	No	300	
Academy Auditorium	In state M.D.'s	M.D.	No	No	200	Thursday afternoons
Hosps., Med. Schs., Academy Auditorium	In state M.D.'s	M.D.	No	No	150-200	Includes round table discussions
Acad. Audit., Hosp., Health Dept. and Med. Sch. Clinics	In state M.D.'s	M.D.	No	No	95	Clinics held 2 days a week in 13 places, attended by 1 to 10 physicians in each clinic in 4 boroughs
Academy Auditorium	In state M.D.'s	M.D.	No	No	235	All lectures open to medical students; library of Acad. open to public, 60% of patrons being M.D.'s
Co. Soc. Audit.	Out of county M.D.'s	Co. Med. Soc. Membership	No	No	100	Course in public speaking, 1 night week Oct.-Dec. 1938, fee $35; course in med. Italian, 3-4 p. m., 1 day week beginning 7/6/38, no fees**; symposium on dermatology 11/14-17/38 for Co. Soc. members; medical library maintained in County Medical Society building
Metropolitan Hospitals	In state M.D.'s	M.D.	20-50	No	1,100	Co. Med. Soc. secretaries acted as registrars; hosp. comms. aided with local arrangements
Facilities of City Health Dept.	Local M.D.'s	M.D.	8	No**	60	Cooperative project with U. S. Public Health Service
Affiliated Institutes and Hospitals	Faculty members	M.D.	Yes	$12-$400	465 (Fig. for 1936-7)	See: Postgrad. Med. School's annual announcement for further details
Affil. Hosps.	Faculty members	M.D.	Yes	Varies	140 (Fig. for 1937-8)	Course in syphilology, Feb.-June, in coop. with U. S. Pub. Health Serv. and St. Dept. Health; 16 physicians registered in 1938; see: bull. for grad. and p. g. opportunities
Clinics and Hospital	Faculty members	M.D.	Yes	Varies	160 (Fig. for 1936-7)	See: Polyclinic Med. School's annual announcement for further details
Hotels and Halls	Out of state M.D.'s	M.D.	No	$15	350	Lectures projected for rural areas with financial aid of medical and health agencies of North Carolina
Hotel and Hospital	Out of state and local M.D.'s	St. Med. Soc. Membership	No	No	....	St. Soc. P. G. Comm. cooperates with other agencies in state active in graduate education
Univ. and Hospital	Out of state M.D.'s and faculty members	M.D.	No	No	600 (Grad. sympos.)	Resident facilities offered prac. phys. at med. sch. for 1 to 2 wks. throughout year, limitied to 2 phys.; fee $10 wk. inc. board and room
Med. Sch.	Out of state M.D.'s	M.D.	No	No	125	Previous symposiums on tumors held at Wake Forest in 1934; financed by St. Med. Soc.
Hospitals and Halls	Out of state M.D.'s	M.D.	No	No**	430	Similar course in pediatrics is projected
Hospitals	Out of state and in state M.D.'s	M.D.	No	....	....	Seminar held yearly, using facilities of two local pediatric hospitals
St. Joseph's and Providence Lying-In Hosps.	In state M.D.'s	M.D.	No	No**	115	Providence hospitals' facilities used for C.P.C.'s, attended by 150 M.D.'s twice monthly, and for annual meetings of St. Med. Soc.; St. Med. Soc. Libr. maintained in St. Soc. building
Hotels and Halls	Univ. prof.	M.D.	No	No**	....	Course recently organized; all data concerning it are not available; St. Med. Assn. developing med. libr. at Seneca
Hospital	Out of state, in state and local M.D.'s	M.D.	No	$2	100	Med. Coll. St. So. Car. and St. Med. Assn. jointly aid in this graduate assembly

GRADUATE MEDICAL
Opportunities for Practicing Physicians to Engage in

State	Location of Course	Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction
Tennessee	9 circuits covering state	St. Med. Assn.	Chairman, Comm. on P. G. Instr. in Obs.	Obstetrics (others projected)	1 day weekly 10 times	Varies	Lectures, Demonstrations and Clinics
	Nashville	Vanderbilt U. Sch. Med.	Director, P. G. Instr.	Clin. and Lab. Diag., Med., Surg., Obs. and Ped.	4 months	May to September	Laboratory and Clinical Training
		Meharry Med. Coll.	President of Coll.	General	2 weeks	May, June	Discussions, Symposiums and Clinical Training
		Nashville P. G. Med. Assn.	Secretary	General	2 weeks	May, June	Lectures and Clinical Training
	Memphis	Mid. So. P. G. Med. Assembly	Secretary-Treasurer	General	4 days	February	Lectures, Exhibits and Round Table Discussions
	Knoxville	Tenn. Valley P. G. Med. Assembly	Secretary-Treasurer	General	3 days	June	Lectures, Exhibits and Round Table Discussions
	Middle Tennessee	Middle Tennessee Med. Assn.	Secretary-Treasurer	General	2 days	Semiannual	Lectures and Discussions
	East Tennessee	East Tennessee Med. Assn.	Secretary-Treasurer	General	2 days	Semiannual	Lectures and Discussions
	Varies	State Med. Assn.	Secretary-Editor	General	3 days	April	Lectures and Demonstrations
	Redboiling Springs	Upper Cumberland Med. Soc.	Secretary-Treasurer	General	2 days	June	Lectures and Demonstrations
	West Tennessee	West Tenn. Med. and Surg. Assn.	Secretary-Treasurer	General	1 day	May	Lectures and Discussions
Utah	Salt Lake City	St. Med. Assn. and St. Bd. of Health	Director, Div. of Mat. Ch. Health, Bd. Health	Obstetrics and Pediatrics	2 days	September (1937)	Lectures
	15 cities and towns	St. Bd. of Health	Director, Div. of Mat. and Child Health	Pediatrics	2 or more days	June-August	Lectures, Demonstrations and Conferences
Wisconsin	Madison and Milwaukee	St. Med. Soc. and 2 Med. Schs.	Chairman, Comm. Sci. Work, St. Med. Soc.	General	3 days	September	Symposiums, Round Table Discussions and Lectures
	45 towns	St. Bd. of Health and St. Med. Soc.	Chief, Bur. Mat. and Ch. Health	Obstetrics and Pediatrics	1 day weekly 5 to 6 times	April to September	Lectures and Discussions
	Milwaukee	Med. Soc. of Milwaukee Co.	Chairman, Comm. on P. G. Instruction	General	Varies	Varies	Lectures, Clinics and Demonstrations

* No organized training in Nevada; data on formal instruction in metropolitan areas not complete.
** Federal financing.

(Continued from page 801)

have aided materially in organizing field courses in eight states. Private and public hospitals have contributed their facilities in nineteen states, and medical schools have provided faculty, space and equipment in nineteen states.

Each state visited seemed to have a different manner of organizing and administering instruction for its own physicians. These differences seemed to be predicated on differing local and community conditions. Such factors as the proximity to medical centers, the proportion of rural and urban communities, the development of highways, the climatic conditions, and the ability of physicians to leave their practices for sufficient time to continue professional training had to be considered.

METHODS OF INSTRUCTION

In twenty-three states, opportunities were offered physicians practicing outside of metropolitan areas to continue their professional training.[2] Ten states have utilized a field secretary or organizer to determine the educational needs of extrametropolitan physicians and to aid materially in meeting these needs. Extension training in smaller cities or towns consisted of lectures illustrated by slides or motion pictures, demonstrations of cases, case finding clinics, symposiums with complete consideration of one subject and/or round table discussions.

Circuits of from five to six towns were sometimes chosen as training centers where each town was visited weekly from four to ten times. This was the method employed in ten states. One physician or a team of physicians would spend from one to two months in the region of the circuit and then move on to a new area. This procedure requires permanent personnel, at least for the period of the course.

Another manner of offering instruction to extrametropolitan physicians, which is being used more frequently today, was the provision of prominent out of state or in state physicians for one or more meetings at fixed teaching centers as part of a continuous, planned, scientific and clinical program. Under this system physicians within convenient distances of the courses are offered the educational advantages of various medical centers brought to the vicinity of their practice. While local facilities may limit the kind of training offered, illustrated lectures, clinics, demonstrations, discussion groups, symposiums and clinical pathologic conferences have been undertaken with success. Hospitals usually offered the best facilities, but hotels have been used extensively, and halls in other buildings sometimes provided the only meeting places available.

Thirty-seven metropolitan centers provided graduate activities in seventeen of the states visited. Seventeen of these were sponsored alone or jointly by component medical societies, fourteen by sectional organizations, twenty-five by medical or graduate schools, four by academies of medicine and seven by tuberculosis, heart, diabetes or other health organizations. In forty-six graduate programs the training was largely didactic. In twenty cities practicing physicians were offered opportunities to obtain individual instruction in small groups so that additional clinical experience might be had under supervision. At these centers bedside training was emphasized, the undergraduate facilities of medical schools and of hospitals being opened during one to three week periods. The equivalent of short

2. See table.

EDUCATION—Continued

Extension Training in 23 of 24 States Visited to Date *

Meeting Places	Instructors	Admission Requirements	Limitation of Classes	Registration Fee	Approximate Yearly Attendance	Miscellaneous Information
Hospitals when possible	Out of state univ. prof.	M.D.	No	$5	900	Commonwealth Fund, Vanderbilt U., U. Tenn. and St. Dept. Pub. Health jointly finance; offices at U. Tenn. Med. Coll. with secretary, field clinician and field organizer
Med. Sch.	Faculty members (20)	M.D.	20	$150 plus Lab. fee	20	Commonwealth Fund approves applicants on their merits; other courses in preventive med., syphilis and gen. clin. subjects available; pkg. med. libr. serv.
Med. Sch.	Faculty members and guests	M.D.	20 (Negro physicians)	$10	20	Fellowships—1 to 2 each year for Negro physicians, offered by Educ. and Research Boards
Nashville General Hospital	65 members and guests	M.D.	10 (Clin. Groups)	$10	30	Personal instruction 12 hours daily with clinical experience on obstetric cases under supervision
Hotels	Out of state M.D.'s	St. Med. Soc. Membership	No	$5	1,250 (660 M.D.'s)	A general review of recent advances in medicine and the specialties
Hotel	Out of state and in state M.D.'s	St. Med. Soc. Membership	No	$4	350	A general survey of recent advances in medicine and the specialties
Hall	In state M.D.'s	M.D.	No	$3	125	A general survey of recent advances in medicine and the specialties
Hotel	Guests and Members	M.D.	No	$2	250	A general survey of recent advances in medicine and the specialties
Hotel	Guests and Members	St. Med. Assn. Membership	No	No	700	Exhibits, scientific and commercial; group meetings for specialists
Hotel	Guests and Members	M.D.	No	$2	150	A general survey of recent advances in medicine
Hotel	Guests and Members	M.D.	No	$2	150	Recent advances in medicine; round table discussion
Univ. Library	Out of state M.D.'s	M.D.	No	No**	175	Physicians from all but 4 counties of state registered
Hospitals and Halls	Out of state M.D.	M.D.	No	No**	....	Course operating now—all data not available; Salt Lake Co. Med. Soc. deposits books and periodicals in library U. Utah and aids in its maintenance
Hotels	Out of state, in state and local M.D.'s	St. Med. Soc. Membership	20 (Discussion Groups)	....	1,300	St. Med. Soc. finances; counc. dist. symposiums available on request to St. Soc.; package med. library service at State University
Varied	Med. Sch. faculty	M.D.	No	No**	650	Dept. Pub. Instr. sponsored crippled children graduate programs in 1936
Marquette Univ. Sch. Med. and Halls	Out of state and faculty members	Co. Med. Soc. Membership	No	Varies	250	Also cooperates with Wisc. Anti-T.B. Assn. and other local scientific groups

term residencies were provided in seventeen medical schools and were projected in two others. In eight states the annual program of the state medical association was devoted substantially to graduate medical instruction and in several others in part to such instruction.[3]

COURSES OFFERED PHYSICIANS

Instruction offered covered the whole field of clinical medicine and several of the basic sciences. Much interest has been shown in subjects in which recent advances have been made. These included therapeutics, preventive medicine, pneumonia, cancer and syphilis. There was special interest also in subjects in which a practical application of the training might follow. Examples of the latter included obstetrics and pediatrics, general medicine, especially cardiac disease and cardiovascular-renal disease, gastro-enterology and proctology, diabetes, allergy, thyroid disease, tuberculosis, common fevers and communicable diseases. Courses in general surgery, especially in traumatic surgery, minor and emergency surgery, neurosurgery, urology and urologic procedures, anesthesia and varicose veins were especially desired. In gynecology, instruction in endocrine therapy was in considerable demand. In the basic sciences pharmacology, pathology and neuropathology, clinical laboratory procedures, surgical anatomy, neuro-anatomy and physiology were frequently taught. There seemed to be a conscious effort to avoid the implication that review courses offered practicing physicians were in any way preparatory to specialization.

PHYSICIANS' INTEREST IN TRAINING

Twelve state committees on graduate education have executive officers with fairly accurate records of attendance. In these states approximately 25 per cent of the practicing physicians engaged in some form of graduate instruction over a year's period. Permanent record systems were being developed in some states. Several records indicated that physicians once enrolled for graduate training returned for additional instruction. In one state 80 per cent of the profession had registered for courses sometime during eight years; half of the physicians enrolled two or more times. In another, two thirds of the registrants of one year returned the next year for continuation of their education.

It has been observed also that when graduate work has once been established in an active county medical society it becomes a permanent annual affair. In some states dormant component societies have been revived by the stimulating experiences of extension courses given by prominent guest physicians who appreciated and attempted to meet the demands of physicians practicing in extrametropolitan areas.

The success of such programs seemed dependent on the sustained interest and activity of component medical societies. With few exceptions it may be said that the most practical educational projects encountered thus far have been found in active, progressive and well organized medical societies. This was especially true in rural communities. Moreover, especially fine sectional meetings have been developed by several metropolitan medical societies during the past five years, and for

3. See Graduate Medical Education, Progress Reports of the Field Study on Graduate Medical Education in the United States Being Conducted by the Council on Medical Education and Hospitals, Organization Section of THE JOURNAL: Alabama, May 14, 1938, p. 207B; Connecticut, June 18, p. 241B; Illinois, April 16, p. 186B; Indiana, February 19, p. 114B; Iowa, January 22, p. 40B; Kansas, April 23, p. 193B; Kentucky, May 21, p. 218B; Michigan, February 5, p. 73B; Minnesota, March 5, p. 136B; Mississippi, May 28, p. 226B; Missouri, April 30, p. 200B; Nebraska, April 9, p. 180B; New Jersey, March 19, p. 159B; New York (excluding metropolitan areas), June 11, p. 233B; Wisconsin, January 29, p. 54B; New York (metropolitan areas), volume 111, August 6, p. 542; Tennessee, August 20, p. 725.

more than fifty years sectional organizations in the South have devoted their efforts to continuing the training of physicians.

The success of extension programs in several states seemed dependent on the personal enthusiasm and energy of one or of a few physicians who, at considerable sacrifice to their vocation, were carrying a major share of the responsibilities connected with their state's educational activities.

FINANCING GRADUATE PROGRAMS

In nine states with extension programs of five or more years' duration the annual cost per graduate physician has varied from $1.39 to $15. In six of these states the registrants were required to pay fees; three state medical associations had no provisions in their budgets for continuing medical education. Five of the nine states received some federal support for professional training. Four of seven other states with permanent programs had no fixed budget allowances for graduate instruction.

Courses were given by instructors without compensation, except for travel expenses, in nineteen states. Oftentimes it was necessary that small fees be charged in order that announcements, registration, travel expenses of instructors and facilities might be financed. Except for federal funds, which have been used over the past three years, and private educational funds, which have been utilized less frequently, there seemed to be little provision for supporting courses except by registration fees and income from exhibits at graduate assemblies. Unfortunately, instruction given on a voluntary basis sometimes was not enthusiastically received, especially when registration fees were not charged.

In forty-eight of the extension courses reviewed thus far, physicians paid registration fees and component medical societies had provided budgets for graduate instruction in fifteen. Five medical schools contributed set amounts to cooperative programs, and the faculties and facilities of medical schools and private and public hospitals were used freely and frequently. Health departments supported thirty-one courses, and in at least twenty-three programs federal funds were utilized.

The more expensive graduate programs employed full time personnel to organize and register graduate physicians and to give them instruction on the circuit plan, employing field clinicians. Less expensive was the use of fixed teaching centers in extrametropolitan towns situated within convenient distances of practicing physicians and of instructors. This method of extension training seemed adaptable to several sections of this country. Still less costly from an administrative standpoint were graduate assemblies in metropolitan areas. When bedside instruction of small groups of physicians was attempted, additional charges were sometimes necessary.

Opportunities for graduate study in twenty-three states are listed in the table.

COMMENT

Representative state association committees on medical education have proved helpful in correlating graduate courses for physicians in several states. Extrametropolitan physicians respond to organized programs and show greater interest in maintaining standards of practice than is generally appreciated. In this connection, it is noteworthy that courses in obstetrics and pediatrics were most frequently desired. Records show that in twelve states one of every four physicians engaged in some form of continuation study during one year. This interest is not limited geographically. Instruction is largely voluntary, which accounts for the relatively low registration fees charged. Recently federal funds have been provided for professional training in several states, supplementing some of the permanent programs which exist in two thirds of the states visited. Educational activities of component medical societies should be further encouraged, with the continued cooperation of academies of medicine, district societies, medical schools, extension divisions of universities, departments of health, hospitals and other interested organizations.

A significant development of residency facilities for practicing physicians, patterned similar to the plans which have operated continuously in Buffalo and Brooklyn since 1921 and 1922, is evident throughout the country. One, two week or longer periods of bedside instruction of limited groups with provision in medical schools and in hospitals for board and/or lodging and intimate instructor-graduate student relationships characterize these short term residencies. Such facilities are now available or projected in San Francisco; Chicago; Indianapolis; Kansas City, Kansas; Louisville, Kentucky; Boston; Detroit; Ann Arbor, Michigan; Minneapolis; Kansas City, Missouri; St. Louis; Omaha; Brooklyn; Buffalo; New York City; Rochester, New York; Syracuse, New York; Durham, North Carolina; Saluda, North Carolina, and Nashville, Tennessee. Thus, practicing physicians of thirteen states are provided opportunities for intramural training in courses designed especially for them.

ESSENTIALS OF AN ACCEPTABLE MEDICAL SCHOOL

(Revised to June 1938)

I. ORGANIZATION

A medical school should be incorporated as a nonprofit institution. Its board of trustees should be composed of public spirited men or women having no financial interest in the operations of the school or its associated hospitals. The trustees should serve for fairly long and overlapping terms. If the choice of trustees is vested in any other body than the board itself, that fact should be clearly stated. Officers and faculty of the school should be appointed by the board.

II. ADMINISTRATION

There should be careful and intelligent supervision of the entire school by the dean or other executive officer who, by training and experience, is fitted to interpret the prevailing standards in medical education and who is clothed with sufficient authority to carry them into effect.

There should be a good system of records showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work. Records should also be kept showing readily the attendance of students at the teaching hospitals and dispensaries and the maternity and postmortem cases attended.

The school should require that students be in actual attendance within the first week of each annual session and thereafter. Except for good cause, such as for illness, no credit should be given for any course when the attendance has been less than 80 per cent of the full time.

The school should issue, at least annually, a bulletin setting forth the character of the work which it offers. Such announcement should contain a list of the members of the faculty with their respective qualifications. The courses available should be set forth by departments (anatomy, physiology and so on) showing for each course its number, subject, content, character (lecture, recitation, laboratory or clinic), length of time, when, where and by whom given, and the amount of credit allowed. Information should be given regarding entrance requirements and tuition fees. The names of the students enrolled during the current or previous sessions should also be included.

The number of students to whom an adequate medical education can be given by a college is related approximately to the laboratory and hospital facilities available and to the size and qualifications of the teaching staff. A close personal contact between students and members of the teaching staff results in an efficiency which is not possible in an institution where the number of students is excessive.

Advanced standing may be granted to students for work done in other acceptable medical schools, and in granting advanced standing there should be no discrimination against the school's full course students. Official verification of the student's previous medical work should be obtained by direct correspondence with the school from which he comes, and his preliminary qualifications should also be verified and recorded the same as for freshmen students.

The admission of students to the medical school must be in the hands of a responsible committee or examiner, whose records shall always be open for inspection. Documentary evidence of the student's preliminary education should be obtained and kept on file. When the medical school is an integral part of the university, this work usually devolves on the university examiner. Unless the university examiner and his records are closely accessible, however, some officer at the medical school should obtain and keep on file each student's academic records.

III. FACULTY

The school should have a competent teaching staff, graded and organized by departments. Appointments should be based on thorough training, successful teaching experience, ability in research, and willingness to pursue an academic career. In the clinical departments this does not exclude men who are in the active practice of medicine and surgery. Nominations for faculty positions should originate in the faculty, usually being made by the dean in consultation with the department heads or a committee of the faculty. Reasonable security of tenure must be assured in order that the personnel of the faculty may have adequate stability. In the preclinical sciences the faculty should include at least ten qualified persons of professorial rank,[1] devoting their entire time to teaching and to that research without which they cannot well keep up with the rapid progress of medical science. For each twenty-five students in a class there should be at least one full time assistant in each of the preclinical departments. Salaries should be sufficient to enable members of the faculty to support themselves and their families without the necessity of devoting time and energy to other occupations.

IV. PLANT

The school should own, or enjoy the assured use of, modern fireproof buildings sufficient in size to provide lecture rooms, class laboratories, small laboratories for the members of the teaching staff and advanced students, administrative offices and a medical library. Equipment should be adequate, both for student use and for research. A trained librarian should be employed to supervise the operation and development of the library, which should include the more modern text and reference books with the *Quarterly Cumulative Index Medicus*, the *Index Catalogue of the Library of the Surgeon-General's Office* and serviceable card indexes. The library should receive regularly the leading medical periodicals, the current numbers of which should be readily accessible. These periodicals should be bound without delay.

There should be provision for the collection, preservation and indexing of anatomic, embryologic, pathologic and other specimens. With each pathologic specimen coming from post mortems there should also be kept the record of the postmortem, the clinical history of the patient on whom the necropsy was held, and microscopic slides showing the minute structure of the disease shown in the gross specimen. The museum furnishes an excellent means of correlating the work of the department of pathology with that of the clinical departments.

There should be sufficient dissecting material to enable each student to dissect at least the lateral half of the human cadaver, to provide cross sections and other material for study and demonstration.

For experimental laboratory work, as well as for medical research, a supply of animals is essential. Proper provision is necessary also for the housing and care of such animals. In any use made of animals every precaution should be taken to prevent suffering, and work by students should be carefully supervised.

Each school should have such useful auxiliary apparatus as stereopticons, reflectoscopes, microprojectors, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, x-ray apparatus, and other aids to effective teaching.

V. CLINICAL FACILITIES

The school may own or control a general hospital. By control is meant the unquestioned right to appoint the attending staff. In this event the students come into close and extended contact with patients under adequate supervision. In the event that a medical school depends for clinical teaching on an independent hospital, it is essential that the clinical teachers, either on nomination by the school or by agreement in conference between school and hospital, be appointed by the hospital trustees to appropriate positions on the hospital staff. Such hospitals should be in close proximity to the school and have a daily average of not less than 200 patients who can be utilized for clinical teaching, these patients to be of such character as to permit the students to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties. In the use of this material, bedside and ward clinics should be developed for sections of from five to ten students, and patients in medicine, surgery and the specialties should be assigned to each student under a well supervised clinical clerk system. The treatment and care of these patients should be particularly observed and recorded by the student under the strict supervision of the intern, the resident or the attending staff of the hospital. The use of existing municipal or state hospitals for teaching purposes is also advised.

The school should also own or control ample hospital facilities for children's contagious and nervous and mental diseases.

The school should own or control a well ordered dispensary or outpatient department with a daily average attendance of at least 100 patients (visits). Good histories and records of the patients should be kept and the material used in medical instruction. The attending staff should be drawn largely from the faculty, including those of highest rank.

At least fifteen maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the clinical instructor. A carefully prepared report of each case should be handed in by the student.

Facilities should be provided for at least fifty necropsies during each school session which are attended and participated in by students. These should be performed by the professor of pathology or a member of his staff. The material thus secured should be used in connection with clinical pathologic conferences.

VI. RESOURCES

Experience has shown that modern medicine cannot be acceptably taught by a school which depends solely on the income from students' fees. No medical school, therefore, should expect to secure approval which does not have a substantial income in addition to students' fees. This statement carries double weight if the school finds it necessary to maintain its own teaching hospital.

1. Professorial rank as here used includes professors, associate professors and assistant professors.

VII. REQUIREMENTS FOR ADMISSION

1. The minimum requirement for admission to approved medical schools is two years of college training which include English, theoretical and practical courses in physics, biology, and general and inorganic chemistry. Three years or more in college is, however, recommended.

2. Since it cannot in general be assumed that all who have satisfied these requirements merely in terms of hourly credits are fitted for the study of medicine, it is desirable that qualitative standards for admission should be imposed.

3. As a rule candidates should have received their preliminary education in institutions approved by accrediting agencies acceptable to the Council. Exception to this rule may be made in the case of applicants who have demonstrated superior ability. For the convenience of admitting officers the Council has prepared a list of colleges of arts and sciences approved by national and regional educational associations.

4. Admission to approved medical schools may also be by examination under the following conditions:

(*a*) Candidates who have completed two years of collegiate instruction and present evidence of general scholarship of high order, but who lack credits in not more than two of the required subjects, may be admitted on passing examinations in these subjects.

(*b*) Candidates who have completed three years of collegiate instruction and present evidence of having accomplished work of distinction in one or more fields of learning, but who lack credit in any or all of the required subjects, may be admitted on passing examinations in these subjects.

VIII. CURRICULUM

The entire course of four academic years should consist of from 3,600 to 4,400 hours, distributed as from 900 to 1,100 hours a year, and shall be grouped as set forth in the following schedule, each group to be allotted approximately the percentage of hours of the whole number of hours in the courses as stated:

	Number	Per Cent.
1. Anatomy, including embryology and histology	14	18.5
2. Physiology	4½	6
3. Biochemistry	3½	4.5
4. Pathology, bacteriology and immunology	10	13
5. Pharmacology	4	5
6. Hygiene and sanitation	3	4
7. General medicine	20	26.5
Neurology and psychiatry		
Pediatrics		
Dermatology and syphilis		
8. General surgery	13	17.5
Orthopedic surgery		
Urology		
Ophthalmology		
Otolaryngology		
Roentgenology		
9. Obstetrics and gynecology	4	5
Total	76	100
Electives	24	0

When the teaching conditions demand it, a subject may be transferred from one division to another.

Several of the medical schools now require an internship for graduation. Where it is not obligatory it is strongly urged and graduates should be assisted in securing internships in hospitals approved by the Council on Medical Education and Hospitals of the American Medical Association.

ESSENTIALS OF AN ACCEPTABLE SCHOOL OF OCCUPATIONAL THERAPY

I. ORGANIZATION

1. A school of occupational therapy should be incorporated under the laws regulating associations operated not for profit. The control should be vested in a board of trustees composed of public spirited men or women having no financial interest in the operation of the school. The trustees should serve for fairly long and overlapping terms. If the choice of trustees is vested in any other body than the board itself, this fact should be clearly stated. Officers and faculty of the school should be appointed by the board.

2. Affiliation with a college, university or medical school is highly desirable but is not an absolute requirement.

3. Schools of occupational therapy should not be operated by hospitals independently. It is understood, however, that hospitals are needed for practice training in the several branches of occupational therapy as required under clinical affiliations.

II. RESOURCES

Experience has shown that an adequate school of occupational therapy cannot be maintained solely by the income from students' fees. No occupational therapy school, therefore, should expect to secure approval which does not have a substantial additional income.

III. FACULTY

The school should have a competent teaching staff, graded and organized by departments. Appointments should be based on thorough education and training and successful teaching experience. The staff should include not less than one regular salaried instructor and one registered occupational therapist. The question of full time and part time appointments is not as important as the qualifications of the instructors, who should be specialists or exceptionally well trained in the lines they are teaching.

IV. PLANT

1. The school should own, or enjoy the use of, buildings sufficient in size to provide adequate lecture rooms, class laboratories and administration offices. Equipment should be adequate for efficient teaching in the various departments.

2. A library containing standard texts and leading periodicals in occupational therapy should be provided.

V. ADMINISTRATION

1. SUPERVISION.—There should be careful and intelligent supervision of the entire school by the dean, director or other executive officer who, by training and experience, is fitted to interpret the prevailing standards and who is clothed with sufficient authority to carry them into effect.

2. RECORDS.—There should be a good system of records showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work. Schools should require that students be in actual attendance within the first week of each annual session and thereafter. Except for good cause, no credit should be given for any course when attendance has been less than 80 per cent.

3. CREDENTIALS.—The admission of students to the occupational therapy school must be in the hands of a responsible committee or examiner, whose records shall always be open for inspection. Documentary evidence of the student's preliminary education should be obtained and kept on file. When the occupational therapy school is an integral part of the university, this work usually devolves on the examiner or registrar.

4. ADVANCED STANDING.—At the discretion of the administration, advanced standing may be granted for work (or experience) required in the occupational therapy curriculum which has been done in other accredited institutions. Official verification of previous work (or experience) should be obtained by direct correspondence. Preliminary qualifications should also be verified and recorded.

5. NUMBER OF STUDENTS.—The number of students admitted to the training course should not be excessive. In practical work of a laboratory nature the number of students that can

be adequately supervised by a single instructor is, in general experience, about fifteen; in lectures the number may be much larger. A close personal contact between students and members of the teaching staff is essential.

6. DISCIPLINE.—All training schools reserve the right to drop a student at any time for any cause which the school authorities deem sufficient.

7. PUBLICATIONS.—The school should issue, at least biennially, a bulletin setting forth the character of the work which it offers. Such an announcement should contain a list of the members of the faculty with their respective qualifications.

VI. CLINICAL AFFILIATIONS

1. No student should be eligible for entrance into clinical training until she has satisfactorily completed at least one academic year, equal to thirty semester credits, fifteen of which should be in biologic science, social science, theory of occupational therapy and clinical subjects and fifteen in therapeutic occupations.

2. Hospitals or institutions affiliating for clinical training should be carefully judged by the board of directors of the school concerned and be acceptable to the Council on Medical Education and Hospitals and should not be considered eligible for training of students unless the director of the occupational therapy department is a competent occupational therapist qualified to handle students.

3. The occupational therapy director of each training department should be considered a member of a special committee on the training school staff and at all times be in close contact with the director of the school.

4. A well defined program of lectures, clinics and staff meetings should be offered by the hospital to each group of students.

5. Written records, case studies and examinations should be required of each student. Students should obtain satisfactory rating in clinical training before a diploma is granted.

6. Uniform written records specially covering the student's personal adjustment as well as general ability should be kept by the occupational therapy director of each department, regular copy of which should be sent to the school at frequent intervals and all reports filed in the individual student's record at the school.

VII. PREREQUISITES FOR ADMISSION

1. AGE.—The admission of candidates should be governed by the fact that it is required that each student be not less than 21 years of age at graduation.

2. EDUCATION.—All candidates must furnish proof of having completed a high school education or its equivalent. Equivalent of high school should be adjudged and recorded by the admissions committee of the school. In addition, all candidates, except those for the degree course, must have had at least one year and preferably two years of further accredited education or successful professional training or experience.

Candidates for admission to a training course in a college or university which is combined with work leading to a bachelor's degree should be required to comply with the regular entrance requirements of the institution concerned.

3. CHARACTER.—All candidates should be required to present evidence of good character and general fitness, the evidence of which should be investigated and duly weighed by the school concerned.

4. HEALTH.—All students should be given a medical examination under the supervision of the school as soon as practicable after admission, and this examination should be repeated annually. The first examination, at least, should include a tuberculin test followed by a roentgen examination of the chest when indicated.

VIII. CURRICULUM

1. LENGTH OF COURSE.—The minimum length of the course should be twenty-five calendar months (100 weeks) of full time training. The course should include not less than sixteen months (sixty-four weeks) of theoretical and technical instruction and not less than nine months (thirty-six weeks) of hospital practice-training under competent supervision; all as set forth in detail in succeeding sections.

2. DISTRIBUTION OF TIME.—The two years devoted to theoretical and technical training should include not less than sixty semester hours, of which not less than thirty semester hours should consist of didactic instruction and not less than twenty-five hours of technical instruction in therapeutic occupations.

(*a*) Theoretical: The hours devoted to theoretical training should be still further subdivided as follows:

	Semester Hours
(1) Biologic Sciences to include: Anatomy, Kinesiology, Neurology, Physiology, Psychiatry, Psychology	15
(2) Social Sciences to include: Sociology, Delinquency and Crime, Social and Educational Agencies	4
(3) Theory of Occupational Therapy to include: Interpretative courses covering the principles and practice of occupational therapy in relation to orthopedics, pediatrics, tuberculosis, psychiatry, general medicine and surgery and other special fields	4
(4) Clinical Subjects to include: Blindness and Deafness, Cardiac Diseases, Communicable Diseases (including Bacteriology if this subject is not given elsewhere), General Medical and Surgical Conditions, Orthopedics, Tuberculosis	4
(5) Electives	3
Total	30

(*b*) Technical: Because of the increasing demands of the medical profession for qualified therapists trained in special fields applicable to the education and training of disabled persons as well as to the treatment of the sick, there must be a certain amount of flexibility in technical requirements.

Concentration may be in the field of *Therapeutic Arts and Crafts*, in some branch of *Educational Therapy*, or in *Recreational Therapy*.

A minimum of thirty semester hours should be devoted to technical training. The major portion may be allotted to concentration in one field and, in this case, survey courses should be given in the other fields.

(1) The Field of Therapeutic Arts and Crafts to include:
Design
Leather
Metal
Plastic Arts
Textiles
Wood

(2) The Field of Educational Therapy to include:
Adult Education
Fine and Applied Arts
Home Economics
Hospital Library Management
Primary and Secondary Education

(3) The Field of Recreational Therapy to include:
Dramatics
Gardening
Music
Physical Education
Social Recreation

Advanced standing may be given to students already qualified in one or more branches of the three fields. Such persons may then be given survey courses in the other fields of concentration, and practice in the application of their specialty to the treatment of disabled persons.

(*c*) Clinical Affiliations: The time devoted to hospital practice-training shall be not less than nine months spent in the following types of hospitals:

Mental hospitals	Not less than two months.
Tuberculosis sanatoriums or services	Not less than one month.
General hospitals	Not less than one month.
Children's hospitals or services	Not less than one month.
Orthopedic hospitals or services	Not less than one month.

The remaining three months optional.

APPROVED SCHOOLS FOR OCCUPATIONAL THERAPY TECHNICIANS

Boston School of Occupational Therapy, Boston
Kalamazoo State Hospital School of Occupational Therapy,* Kalamazoo, Mich.
St. Louis School of Occupational and Recreational Therapy, St. Louis
Philadelphia School of Occupational Therapy, Philadelphia
Milwaukee-Downer College, Department of Occupational Therapy, Milwaukee
University of Toronto, Department of University Extension, Toronto, Ontario, Canada

* Tentatively approved.

APPROVED SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS

Children's Hospital, Los Angeles
Stanford University Hospitals, San Francisco
Walter Reed General Hospital, Washington, D. C.
Northwestern University Medical School, Chicago.
Bouvé-Boston School of Physical Education, Boston
Harvard Medical School, Course 445, Boston
Boston University, Sargent College of Physical Education, Cambridge, Mass.
St. Louis University School of Nursing, St. Louis
University of Buffalo, Buffalo
Hospital for Ruptured and Crippled, New York City
D. T. Watson School of Physiotherapy, Leetsdale, Pa.
College of William and Mary, Richmond, Va.
University of Wisconsin, Madison

APPROVED SCHOOLS FOR CLINICAL LABORATORY TECHNICIANS

ARKANSAS

University of Arkansas, Little Rock

CALIFORNIA

Children's Hospital, Los Angeles
College of Medical Evangelists, Los Angeles
Los Angeles County Hospital, Los Angeles
Huntington Memorial Hospital, Pasadena
Mary's Help Hospital, San Francisco
St. Luke's Hospital, San Francisco
University of California Hospital, San Francisco

COLORADO

Children's Hospital, Denver
University of Denver, Denver

GEORGIA

University of Georgia School of Medicine, Augusta
Emory University, Emory University

ILLINOIS

Michael Reese Hospital, Chicago
Mt. Sinai Hospital, Chicago
Northwestern University Medical School, Chicago
Evanston Hospital, Evanston
St. John's Hospital, Springfield
St. Therese's Hospital, Waukegan

INDIANA

Indianapolis City Hospital, Indianapolis
Indiana University School of Medicine, Indianapolis
Methodist Episcopal Hospital, Indianapolis
South Bend Medical Laboratory, South Bend

KANSAS

Bethany Methodist Hospital, Kansas City
University of Kansas Hospitals, Kansas City
St. Francis Hospital, Wichita
Wichita Hospital, Wichita

KENTUCKY

St. Joseph's Hospital, Lexington
University of Kentucky, Lexington
St. Joseph Infirmary, Louisville
SS. Mary and Elizabeth Hospital, Louisville
State Board of Health, Louisville

LOUISIANA

Loyola University, New Orleans

MAINE

Central Maine General Hospital, Lewiston

MARYLAND

Mercy Hospital, Baltimore

MASSACHUSETTS

Simmons College, Boston
Mercy Hospital, Springfield
Worcester State Hospital, Worcester
Worcester City Hospital, Worcester

MICHIGAN

Leila Y. Post Montgomery Hospital, Battle Creek
Mercy Hospital, Bay City
City of Detroit Receiving Hospital, Detroit
Grace Hospital, Detroit
Henry Ford Hospital, Detroit
Providence Hospital, Detroit
Wayne University, Detroit
Woman's Hospital, Detroit
Michigan State College, East Lansing
William J. Seymour Hospital, Eloise

MINNESOTA

College of St. Scholastica, Duluth
St. Luke's Hospital, Duluth
Fairview Hospital, Minneapolis
Minneapolis General Hospital, Minneapolis
Northwestern Hospital, Minneapolis
Swedish Hospital, Minneapolis
University of Minnesota, Minneapolis
Charles T. Miller Hospital, St. Paul

MISSISSIPPI

Vicksburg Sanitarium and Crawford Street Hospital, Vicksburg

MISSOURI

University of Missouri School of Medicine, Columbia
Kansas City Health Department Laboratory, Kansas City
Menorah Hospital, Kansas City
Research Hospital, Kansas City
St. Joseph Hospital, Kansas City
St. Luke's Hospital, Kansas City
St. Mary's Hospital, Kansas City
St. Louis University School of Nursing, St. Louis

MONTANA

State University of Montana, Missoula

NEBRASKA

Bryan Memorial Hospital, Lincoln
Lincoln General Hospital, Lincoln
University of Nebraska Hospital, Omaha

NEW HAMPSHIRE

Mary Hitchcock Memorial Hospital, Hanover

NEW YORK

Bender Hygienic Laboratory, Albany
Jewish Hospital, Brooklyn
St. John's Hospital, Brooklyn
Buffalo City Hospital, Buffalo
Buffalo General Hospital, Buffalo
St. Joseph's Hospial, Elmira
Mary Immaculate Hospital, Jamaica
Rochester General Hospital, Rochester
Ellis Hospital, Schenectady
Russell Sage College, Troy

NORTH CAROLINA

Duke Hospital, Durham

OHIO

Institute of Pathology, Western Reserve University, Cleveland
Mt. Sinai Hospital, Cleveland
Starling-Loving University Hospital, Columbus
White Cross Hospital, Columbus
Huron Road Hospital, East Cleveland
College of Mount St. Joseph-on-the-Ohio, Mount St. Joseph
Youngstown Hospital, Youngstown

OKLAHOMA

St. Anthony's Hospital, Oklahoma City
State University and Crippled Children's Hospitals, Oklahoma City

OREGON

Emanuel Hospital, Portland
Good Samaritan Hospital, Portland
St. Vincent's Hospital, Portland
University of Oregon, Portland

PENNSYLVANIA

Abington Memorial Hospital, Abington
Moravian College for Women, Bethlehem
St. Luke's Hospital, Bethlehem
Bryn Mawr Hospital, Bryn Mawr
Fitzgerald-Mercy Hospital, Darby
Harrisburg Hospital, Harrisburg
Harrisburg Polyclinic Hospital, Harrisburg
Bucknell University, Lewisburg
Germantown Dispensary and Hospital, Philadelphia
Jefferson Medical College Hospital, Philadelphia
Lankenau Hospital, Philadelphia
Mt. Sinai Hospital, Philadelphia
St. Agnes Hospital, Philadelphia
St. Joseph's Hospital, Philadelphia
Temple University, Philadelphia
Reading Hospital, Reading
Moses Taylor Hospital, Scranton
Scranton State Hospital, Scranton

SOUTH CAROLINA

Spartanburg General Hospital, Spartanburg

TENNESSEE

Knoxville General Hospital, Knoxville
John Gaston Hospital, Memphis

TEXAS

Hotel Dieu Hospital, Beaumont
Baylor University Hospital, Dallas
St. Paul's Hospital, Dallas
John Sealy Hospital, Galveston
St. Mary's Infirmary, Galveston
Robert B. Green Memorial Hospital, San Antonio

VIRGINIA

College of William and Mary, Richmond
Johnston-Willis Hospital, Richmond
Medical College of Virginia Hospital Division, Richmond
Stuart Circle Hospital, Richmond

WASHINGTON

State College of Washington, Pullman
Deaconess Hospital, Spokane
Sacred Heart Hospital, Spokane
St. Luke's Hospital, Spokane
St. Joseph's Hospital, Tacoma
Tacoma General Hospital, Tacoma

WISCONSIN

Madison General Hospital, Madison
St. Mary's Hospital, Madison
University of Wisconsin, Madison
Milwaukee Hospital, "The Passavant," Milwaukee
St. Joseph's Hospital, Milwaukee
Milwaukee County General Hospital, Wauwatosa

DESCRIPTION OF MEDICAL COLLEGES

ALABAMA

University (Tuscaloosa)

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE.—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868, inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907, when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus near Tuscaloosa. Coeducational since 1920. Minimum entrance requirements are three years of collegiate work. The course of study covers two years of thirty-six weeks each. The faculty includes 15 professors and 12 instructors, assistants, etc., a total of 27. The tuition fees are $271 each year. Each class is limited to fifty students. The registration for 1937-1938 was 91. The next session begins Sept. 15, 1938, and ends May 30, 1939. The Dean is Stuart Graves, M.D.

ARKANSAS

Little Rock

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE, 1209 McAlmont Street.—Organized in 1879 as the Medical Department of Arkansas Industrial University. Present title in 1899. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. Coeducational since organization. The faculty consists of 26 professors and 74 lecturers and assistants, total 100. The curriculum covers four years of nine months each. Entrance requirements are two years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. The fees for the four years for residents of Arkansas are $275; nonresidents are charged $155 additional each year. The registration for 1937-1938 was 298; graduates, 80. The next session begins Sept. 28, 1938, and ends June 6, 1939. The Dean is Frank Vinsonhaler, M.D.

CALIFORNIA

Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, University Campus, Berkeley; Medical Center, San Francisco—Organized in 1862 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909, by legislative enactment, the College of Medicine of the University of Southern California, at Los Angeles, became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica, and therapeutics were provided. Coeducational since organization. Three years of collegiate work is required for admission. The work of the first year is given at Berkeley and that of the last three years at San Francisco. The faculty is composed of 153 professors and 235 associates and assistants, a total of 388. The course covers four years of eight months each, and an additional fifth year consisting of an internship in a hospital or of special work in a department of the medical school. Fees for the four years, respectively, for residents of California are $277, $240, $235 and $235; nonresidents are charged $300 additional each year. The registration for 1937-1938 was 247; graduates, 63. The next session begins Aug. 22, 1938, and ends May 20, 1939. The Dean is Langley Porter, M.D., San Francisco.

Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS.—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda, the clinical departments at Los Angeles. Coeducational since organization. The faculty is composed of 55 professors and 263 associates, assistants and instructors, a total of 318. The course covers a period of four years of nine months each and an additional year consisting of an internship in an approved hospital. Sixty-four semester hours of collegiate work are required for admission. The total fees for the four years, respectively, are $530, $435, $530 and $540. The registration for 1937-1938 was 384; graduates, 102. The next session begins September 5, 1938, and ends June 11, 1939. The Dean is E. H. Risley, M.D., Loma Linda; and the Associate Dean is W. E. Macpherson, M.D., Los Angeles.

Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE, 3551 University Avenue.—Organized in 1885 as the University of Southern California College of Medicine. First class graduated in 1888. In 1908 it became the Medical Department of the University of California in Los Angeles. In 1909 the College of Physicians and Surgeons, established in 1904, became the Medical Department of the University of Southern California. Its activities were suspended in 1920; reorganized in May 1928, under present title. The faculty consists of 149 professors and 148 instructors, assistants and others, a total of 297. An internship is required for graduation. Three years of collegiate work is required for admission. Coeducational since organization. Annual fees amount to $452. The registration for 1937-1938 was 190; graduates, 43. The next session begins Sept. 19, 1938, and ends June 10, 1939. The Dean is Paul S. McKibben, Ph.D.

San Francisco

STANFORD UNIVERSITY SCHOOL OF MEDICINE, 2398 Sacramento Street, San Francisco.—Organized in 1908, when, by agreement, the interests of Cooper Medical College were taken over. The first class graduated in 1913. Coeducational since organization. The faculty consists of 129 professors and 149 lecturers, assistants, and others, a total of 278. Three years of collegiate work is required for admission. The course covers four years of eight and one-half months, each, plus a fifth year of intern work. The fees for the four years, respectively, are $470, $446, $364 and $364. The registration for 1937-1938 was 237; graduates, 63. The next session begins September 27, 1938, and ends June 14, 1939. The Dean is Loren Roscoe Chandler, M.D.

COLORADO

Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE, 4200 East Ninth Avenue.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged, Jan. 1, 1911. Coeducational since organization. The faculty is composed of 57 professors and 130 lecturers, instructors and assistants, a total of 187. The course covers four years of nine months each. The entrance requirements are three years of collegiate work. The fees for residents of Colorado, for each of the four years are, respectively, $271, $261, $251 and $246. Nonresidents are charged $195 additional each year. The registration for 1937-1938 was 207; graduates, 49. The next session begins Sept. 26, 1938, and ends June 12, 1939. The Dean is Maurice H. Rees, M.D.

CONNECTICUT

New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE, 333 Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. Coeducational since 1916. The faculty consists of 153 professors and 209 lecturers and assistants, a total of 362. The requirements for admission are three years of collegiate work. The course covers four years of nine months each. The fees for the four years, respectively, are $505, $500, $500 and $520. The registration for 1937-1938 was 190; graduates, 40. The next session begins Sept. 26, 1938, and ends June 14, 1939. The Dean is Stanhope Bayne-Jones, M.D.

DISTRICT OF COLUMBIA

Washington

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, 3900 Reservoir Road, N.W.—Organized in 1851. First class graduated in 1852. The faculty is composed of 63 professors, 45 associate professors, 28 assistant professors and 119 instructors; total 263. Required for admission, three years of collegiate work. The course of study covers four terms of eight and one-half months each. The present fees for each of the four sessions, are $500. The registration for 1937-1938 was 350; graduates, 107. The next session begins Sept. 19, 1938, and ends June 12, 1939. The Dean is David V. McCauley, S.J., Ph.D.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, 1335 H Street, N.W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an Act of Congress, the title of George Washington University was granted to the institution. Coeducational since 1884. The faculty is composed of 57 professors and 111 instructors, demonstrators and assistants, a total of 168. Two years of collegiate work is required for admission. The course covers four years of thirty-six weeks each. The fees for the four years, respectively, are $550, $550, $550 and $500. The registration for 1937-1938 was 249; graduates, 68. The next session begins Sept. 28, 1938, and ends June 14, 1939. The Dean is Earl B. McKinley, M.D.

HOWARD UNIVERSITY COLLEGE OF MEDICINE, Fifth and W Streets, N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Coeducational since organization. Negro students compose a majority of those in attendance. The faculty comprises 34 professors and 79 lecturers and assistants, 113 in all. The admission requirements are at least two years of collegiate work. The course covers four years of thirty-three weeks each. The fees for each of the four sessions, respectively, are $269, $269, $259 and $266. Registration for 1937-1938 was 131; graduates, 22. The next session begins Sept. 26, 1938, and ends June 9, 1939. The Dean is Numa P. G. Adams, M.D.

GEORGIA

Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE, 50 Armstrong Street and Druid Hills.—Organized in 1854 as the Atlanta Medical College. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874.

In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Three years of collegiate work is required for admission. The faculty consists of 18 professors and 177 associates and assistants, a total of 195. The course of study is four years of thirty-two weeks each. The fees for each of the four years are $338. The registration for 1937-1938 was 220; graduates, 60. The next session begins Sept. 26, 1938, and ends June 5, 1939. The Dean is Russell H. Oppenheimer, M.D.

Augusta

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia, the name being changed July 1, 1933, to the University of Georgia School of Medicine. Property transferred to university in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Coeducation was begun in 1920. The faculty includes 59 professors and 30 assistants, 89 in all. Three years of collegiate work is required for admission. The course is four years of thirty-four weeks each. The fees for each of the four years are $185 for residents of Georgia, and $365 each year for nonresidents. The registration for 1937-1938 was 151; graduates, 34. The next session begins Sept. 21, 1938, and ends June 5, 1939. The Dean is G. Lombard Kelly, M.D.

ILLINOIS

Chicago

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 South Wolcott Avenue.—Incorporated in 1915 as the Bennett Medical College, and operated as an organic part of Loyola University, by virtue of an agreement entered into with the trustees of Bennett Medical College. Present title assumed in 1917. The Chicago College of Medicine and Surgery was purchased in 1917. The first class graduated in 1916. Coeducational. Three years of collegiate work is required for admission. The course of study is five years, including an internship. The B.S. degree in medicine is conferred at the end of the third year. The faculty is composed of 120 in professorial rank and 140 others, a total of 260. The fees for each year are $450, $437, $366 and $328, respectively. The enrolment for 1937-1938 was 403, graduates, 115. Next session for juniors and seniors begins September 6, 1938, for freshmen and sophomores, September 19, 1938, and ends June 15, 1939. The Dean is Louis D. Moorhead, M.D.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 303 East Chicago Avenue.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken. Became an integral part of Northwestern University in 1905. Coeducational since 1926. The faculty comprises 139 professors, 316 associates and instructors, a total of 455. The requirement for admission is three years of collegiate work. The B.S. degree in medicine may be conferred before the end of the senior year. The course covers four years of eight and one-half months each and a fifth year spent in an approved hospital as an intern or in other practical work. The total fees are $365 each year. The registration for 1937-1938 was 558; graduates, 141. The next session begins Sept. 27, 1938, and ends June 10, 1939. The Dean is Irving S. Cutter, M.D.

THE UNIVERSITY OF CHICAGO MEDICAL SCHOOLS.—The Medical Schools include (a) The School of Medicine of the Division of Biological Sciences and (b) Rush Medical College, both of which are organized within the Division of Biological Sciences. The first two years of the medical course for both are given in the School of Medicine of the Division of Biological Sciences and the last two years are given either in the School of Medicine of the Division of Biological Sciences or in Rush Medical College.

The School of Medicine of the Division of Biological Sciences, Fifty-Ninth Street and Ellis Avenue.—Organized in 1924. The work of the first two years of the medical course has been given on the Quadrangles since 1899, in cooperation with Rush Medical College, and that of the third and fourth clinical years has been given since 1924 with the organization of this medical school and the construction on the Quadrangles of the University hospitals and clinics. Coeducational. The faculty is composed of 98 professors, 132 associates, instructors and others, a total of 230. The requirements for admission are three years of collegiate work. The B.S. degree in medicine may be obtained during the second year. The curriculum covers twelve quarters of work. Students are admitted at the beginning of the autumn quarter. The tuition fee for each of the four years is $450. The registration for 1937-1938 was 287; graduates, 52. The next session begins Oct. 3, 1938, and ends June 14, 1939.

Rush Medical College, 1758 West Harrison Street.—Chartered in 1837; held first class in 1843. First class graduated in 1844. In 1887 the college became the medical department of Lake Forest University, retaining, however, its self government. This relation was dissolved in April, 1898, and in the same month affiliation with the University of Chicago was established. Coeducational since 1898. In May, 1924, by a new contract, the University of Chicago took over the work of Rush Medical College as a department of the University. Thereafter only clinical work has been offered by Rush Medical College. The work of the first two years is given on the University Quadrangles. Three years of collegiate work are required for admission. The year is divided into four quarters of twelve weeks each; the completion of the work of three of these quarters gives credit for a college year. The requirements for the degree consists of twelve full quarters of work. The faculty is composed of 140 professors, 157 associates, instructors and others, a total of 297. The tuition fee is $450 for juniors and $375 for seniors. Effective autumn 1939 the fee for seniors will be increased to $450. The registration for 1937-1938 was 262; graduates, 168. The next session begins Oct. 3, 1938, and ends June 13, 1939. The school is in session all year except the month of September.

All correspondence relating to general policies should be addressed to W. H. Taliaferro, Ph.D., Dean of the Division of Biological Sciences, or to A. C. Bachmeyer, M.D., Associate Dean of the Division; that relating to Rush Medical College should be addressed to Emmet B. Bay, M.D., Associate Dean of the Division of Biological Sciences (Rush Medical College); and that pertaining to student questions should be addressed to B. C. H. Harvey, M.D., Dean of Students.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, 1853 West Polk Street.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897. Relationship with the university was canceled in June, 1912, and was restored in March, 1913, when the present title was assumed. Coeducational since 1898. Three years of collegiate work is required for admission. The curriculum covers four years of thirty-two weeks each, and a year of internship in an approved hospital. The B.S. degree in medicine is conferred at the end of the second year. The faculty is composed of 143 of professorial rank and 317 associates, instructors and assistants, a total of 460. The tuition is $150 a year for students who are residents of Illinois; $225 a year for nonresident students. The registration for 1937-1938 was 634; graduates, 150. The next session begins Sept. 26, 1938, and ends June 9, 1939. The Dean is David J. Davis, M.D.

INDIANA

Bloomington-Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Coeducational since organization. The faculty consists of 270 professors, lecturers, associates and assistants. Three years of collegiate work is required for admission. The B.S. degree in medicine is conferred. The work of the first year is given at Bloomington and the work of the next three years at Indianapolis. The regular fee for the medical course for all four years is $205 a year for residents of Indiana, and $410 for nonresidents. The registration for 1937-1938 was 429; graduates, 87. The next session begins Sept. 17, 1938, and ends June 5, 1939. The Dean at Bloomington is Burton D. Myers, M.D., and the Dean at Indianapolis is Willis D. Gatch, M.D.

IOWA

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. Coeducational since 1870. The faculty is made up of 56 professors, 64 lecturers, demonstrators and assistants, a total of 120. Three years of collegiate work is required for admission. The B.S. degree in the combined course of liberal arts and medicine is conferred. The course of study covers four years of thirty-four weeks each. The tuition fee is $196 each year for residents of Iowa and $460 for nonresidents. The registration for 1937-1938 was 369; graduates, 83. The next session begins Sept. 26, 1938, and ends June 5, 1939. The Dean is Ewen Murchison MacEwen, M.D.

KANSAS

Lawrence-Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. Absorbed Kansas Medical College in 1913. First class graduated in 1906. The clinical courses are given at Kansas City. Coeducational since 1880. The faculty includes 59 professors and 135 instructors, assistants and others, a total of 194. The requirement for admission is two years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. The course covers four years of nine months each. The total fees for residents of the state for each of the four years are, respectively, $148, $147, $155 and $157. For nonresidents the fees are $268, $327, $405 and $407. The registration for 1937-1938 was 289; graduates, 67. The next session begins Sept. 22, 1938, and ends June 12, 1939. The Dean is H. R. Wahl, M.D., Kansas City.

KENTUCKY

Louisville

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE, First and Chestnut Streets.—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated each subsequent year except 1863. In 1846 the name was changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department; in 1908, the Louisville Medical College, the Hos-

pital College of Medicine and the Kentucky School of Medicine. In 1922 it changed its name to the University of Louisville School of Medicine. Coeducational since organization. Two years of collegiate work is the minimum requirement for admission. Preference is given applicants with a degree or three college years leading to a degree. The faculty numbers 74 professors and 95 assistants, instructors and others, a total of 169. Course covers four years of thirty-two weeks each, exclusive of vacations and examinations. Fees for four years are, respectively, $404, $404, $409 and $419. The registration for 1937-1938 was 342; graduates, 93. The next session begins Sept. 15, 1938, and ends June 3, 1939. The Dean is John Walker Moore, M.D.

LOUISIANA

New Orleans

LOUISIANA STATE UNIVERSITY MEDICAL CENTER, 1542 Tulane Avenue.—Organized January 1931. Coeducational. First session October 1931, with students of first and third year. Faculty comprises 33 professors and 134 assistant professors, instructors and assistants, a total of 167. Course covers four years of no less than 32 weeks each and one year of general rotation or laboratory internship in an approved hospital. A minimum of three years' collegiate work is required for admission. Total fees, $137 each year for residents of Louisiana; additional tuition of $400 each year for nonresidents. The registration for 1937-1938 was 307; graduates, 55. The next session begins Sept. 5, 1938, and ends May 27, 1939. The Dean is Rigney D'Aunoy, M.D.

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE, 1430 Tulane Avenue.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847, and became the Medical Department of the Tulane University of Louisiana in 1884. Present title in 1913. Coeducational since 1915. The faculty comprises 34 professors and 198 associate and assistant professors, instructors and assistants, a total of 232. The course covers four years of thirty-two weeks each. A minimum of two years of collegiate work is required for admission. Total fees for each of the four years, respectively, are $457, $447, $432 and $442. The registration for 1937-1938 was 468; graduates, 113. The next session begins Sept. 23, 1938, and ends June 7, 1939. The Dean is Charles C. Bass, M.D.

MARYLAND

Baltimore

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, Washington and Monument Streets.—Organized in 1887. Offered preliminary course only until 1893. The first class graduated in 1897. Coeducational since organization. The faculty consists of 71 professors and 372 instructors, assistants and others, a total of 443. The requirement for admission is a collegiate degree. The course extends over four years of eight and one-half months each. The total fees for each year are, respectively, $621, $620, $620 and $620. The registration for 1937-1938 was 281; graduates, 76. The next session begins Sept. 27, 1938, and ends June 6, 1939. The Dean is Alan M. Chesney, M.D.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged with it in 1913. In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed. Coeducational since 1918. The faculty consists of 45 professors, 72 associate and assistant professors, and 191 intructors and assistants, a total of 308. Three years of collegiate work is required for admission. The course covers four years of eight months each. The fees for the four years, respectively, are: $485, $475, $475 and $490 for residents of the state; for nonresidents the fees are $150 additional each year. The registration for 1937-1938 was 373; graduates, 102. The next session begins Sept. 22, 1938, and ends June 3, 1939. The Dean is J. M. H. Rowland, M.D.

MASSACHUSETTS

Boston

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873 as a homeopathic institution. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class was graduated in 1874. Became nonsectarian in 1918. Coeducational since organization. Three years of collegiate work is required for admission. The faculty includes 25 professors, 165 associates and others, a total of 190. The course covers four years. Total fees for each of the four years, respectively, are $475, $425, $425, $439. The registration for 1937-1938 was 199; graduates, 43. The next session begins Sept. 22, 1938, for 1st, 2d and 3d year students, and Sept. 12, 1938, for 4th year students; and ends June 12, 1939. The Dean is Alexander S. Begg, M.D.

HARVARD UNIVERSITY MEDICAL SCHOOL, 25 Shattuck Street.—Organized in 1782. The first class graduated in 1788. It has a faculty of 151 professors and 427 other instructors and assistants, a total of 578. Two years of collegiate work is required for admission. The total fees for each of the four years is $420, plus $5 the first year for matriculation. The registration for 1937-1938 was 520; graduates, 135. The next session begins Sept. 26, 1938, and ends June 22, 1939. The Dean is Charles Sidney Burwell, M.D.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Coeducational since 1894. It has a faculty of 81 professors and 295 assistants, lecturers and others, a total of 376. A bachelor's degree is required for admission. The course covers four years of eight months each. The total fees for each of the four years are $512, $507, $407 and $417. The registration for 1937-1938 was 419; graduates, 109. The next session begins Sept. 21, 1938, and ends June 19, 1939. The Dean is A. Warren Stearns, M.D.

MICHIGAN

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since 1870. It has a faculty of 25 professors, 20 associate professors, 27 assistant professors, 114 assistants, instructors and lecturers; a total of 186. The entrance requirements are ninety semester hours. The curriculum covers four years of nine months each. The total fees for Michigan students are $220 for each of the four years, respectively; for nonresidents, $350 a year. The registration for 1937-1938 was 481; graduates, 102. The next session begins Sept. 26, 1938, and ends June 17, 1939. The Dean is A. C. Furstenberg, M.D.

Detroit

WAYNE UNIVERSITY COLLEGE OF MEDICINE, 1516 St. Antoine Street.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with the title of Detroit College of Medicine and Surgery in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. In 1934 the name was changed by the action of the Detroit Board of Education to Wayne University College of Medicine, as a part of the program of consolidation of the Detroit City Colleges into a university system. Coeducational since 1917. Entrance requirement is an academic degree or 90 semester hours of academic credit with "combined degree" guaranteed by school of arts and sciences. The faculty consists of 47 professors, 230 lecturers and others, a total of 277. The course covers four years of nine months each and a fifth year of intern work. The total fees for each of the first four years are, for Wayne County residents $325, and for nonresidents outside of Wayne County $425; for the fifth or intern year a diploma fee of $10. The registration for 1937-1938 was 260; graduates 78. The next session begins Sept. 19, 1938, and ends June 17, 1939. The Dean is Raymond B. Allen, M.D.

MINNESOTA

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 90 professors and 238 instructors, a total of 328. The curriculum covers four years of nine months each, and a year's internship in an approved hospital. The school is operated on the four-quarter plan. The entrance requirements are two years of university work, which must include six semester credits of rhetoric, eight semester credits of physics; thirteen credits of general chemistry, qualitative and quantitative analysis and organic chemistry, eight credits of zoology, and a reading knowledge of scientific German, with a "C" average in all subjects and in the sciences. Beginning with the academic year 1939-1940 the minimum entrance requirement will be three years of college work with the addition of general psychology, physical chemistry and genetics and eugenics to the above specified courses. Students are required to meet the requirements for a degree of B.S. or B.A. before receiving the degree of Bachelor of Medicine (M.B.), which is granted at the end of the four-year course. The M.D. degree is conferred after a year of intern work, of advanced laboratory work, or of public health work has been completed. Students are graduated at the end of any quarter in which work is completed and examinations passed. Total fees are $243 for residents and $393 for nonresidents, each year of three quarters. The registration for 1937-1938 was 469; graduates, 117. The next session begins Sept. 26, 1938, and ends June 17, 1939. The Dean is Harold S. Diehl, M.D.

MISSISSIPPI

University

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE.—Organized in 1903. Coeducational since organization. Gives only the first two years of the medical course. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. The session extends over eight and one-half months. Entrance requirement is three years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. The faculty includes 9 professors, 2 assistant professors, 2 adjunct professors, 14 instructors, assistants, and others, a total of 27. The total fees for the first year are $353, and for the second year $325. The nonresident fee is $50 additional each year. The registration for 1937-1938 was 34. The next session begins Sept. 19, 1938, and ends June 5, 1939. The Dean is B. S. Guyton, M.D.

MISSOURI

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. Coeducational since 1872. The faculty includes 18 professors and 10 instructors, lecturers and others, a total of 28. The entrance requirements are 90 semester hours of collegiate work. The B.S. degree

in medicine is conferred at the end of the second year. Total fees for the first year are $150, for the second, $135. Nonresidents of the state pay $40 per semester extra. The registration for 1937-1938 was 79. The next session begins Sept. 12, 1938, and ends June 6, 1939. The Dean is Dudley S. Conley, M.D.

St. Louis

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Boulevard. Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical School of St. Louis University in 1903. The faculty is composed of 75 professors and 242 instructors and assistants, a total of 317. The completion of three years of college study is the minimum admission requirement but students presenting meritorious credits in excess of the minimum are accepted by preference. The B.S. degree in medicine, except for those already registered for this degree, has been discontinued (1937). The curriculum covers four years of thirty-two weeks each. The summer is optional and offers courses academically equivalent to those in the regular session. The total fees for the four years, respectively, are $525, $525, $420 and $455. The registration for 1937-1938 was 461; graduates, 103. The next session begins Sept. 20, 1938, and ends June 1, 1939. The Dean is Alphonse M. Schwitalla, S.J., Ph.D.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Coeducational since 1818. The faculty comprises 116 professors and 218 lecturers, instructors and others, a total of 334. Four years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the third or fourth year. The course is four years of eight months each. The total fees for the four years are, respectively, $524, $419, $419 and $424. The registration for 1937-1938 was 348; graduates, 96. The next session begins Sept. 22, 1938, and ends June 6, 1939. The Dean is Philip A. Shaffer, Ph.D.

NEBRASKA

Omaha

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE, 306 North Fourteenth Street.—Organized in 1892 as the John A. Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. It has a faculty of 69 professors and 74 instructors, lecturers and assistants, a total of 143. Two years of collegiate work required for admission. The B.S. degree in medicine is conferred at the end of the second year. The curriculum covers four years of eight months each. The total fees each year for the four years are, respectively, $393, $393, $348 and $356. The registration for 1937-1938 was 262; graduates, 68. The next session begins Sept. 20, 1938, and ends June 1, 1939. The Dean is Bryan M. Riley, M.D.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913, when the work of all four years was transferred to Omaha. Coeducational since 1882. The faculty is composed of 71 professors and 52 lecturers and instructors, a total of 123. Three years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the second year. The fees for each of the four years, respectively, are $219, $214, $214 and $214. The registration for 1937-1938 was 319; graduates, 75. The next session begins Sept. 19, 1938, and ends June 6, 1939. The Dean is C. W. M. Poynter, M.D.

NEW HAMPSHIRE

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized by Dr. Nathan Smith in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Courses of the third and fourth year were discontinued in 1914. The faculty consists of 17 professors and 12 instructors, a total of 29. Three years of collegiate work is required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the A.B. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The fees for the first year are $460 and $450 for the second year. The registration for 1937-1938 was 38. The next session begins Sept. 22, 1938, and ends June 16, 1939. The Dean is John P. Bowler, M.D.

NEW YORK

Albany

ALBANY MEDICAL COLLEGE, 47 New Scotland Avenue.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915, Union University assumed educational control. Coeducational since 1915. The faculty is composed of 60 professors and 83 instructors, assistants and others, a total of 143. A collegiate degree is required for admission. The curriculum covers four years of eight months each. The total fees for four years, respectively, are $455, $430, $415 and $415. The registration for 1937-1938 was 110; graduates, 25. The next session begins Sept. 26, 1938, and ends June 12, 1939. The Dean is R. S. Cunningham, M.D.

Brooklyn

LONG ISLAND COLLEGE OF MEDICINE, 350 Henry Street.—Organized in 1858 as the Long Island College Hospital. The first class graduated in 1860 and the last class in 1930. Reorganized with a new charter in 1930 as the present institution. The first class graduated in 1931. Coeducational. It has a faculty of 119 professors, associate, assistant, clinical and assistant clinical professors, and 171 lecturers, associates, instructors, assistants and others, a total of 290. Seventy-two semester hours of collegiate work is required for admission. The course covers four years. The total fee for each of the four years is $610. The registration for 1937-1938 was 361; graduates, 88. The next session begins Sept. 12, 1938, for fourth year and Sept. 26 for other years, and ends June 10, 1939. The Dean is Jean Alonzo Curran, M.D.

Buffalo

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE, 24 High Street.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The faculty is composed of 87 professors and 178 associates, assistants and others, a total of 265. Two years of collegiate work is required for admission. The course covers four years of eight months each. The total fees for each of the four years are, respectively, $530, $525, $520 and $530. The registration for 1937-1938 was 258; graduates, 58. The next session begins Oct. 2, 1938, and ends June 10, 1939. The Dean is Edward W. Koch, M.D.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 630 West One Hundred and Sixty-Eighth Street.—The medical faculty of Columbia College, then known as King's College, was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons, which had received an independent charter in 1807. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The medical school has been coeducational since 1917. The faculty is composed of 212 professors and 500 instructors, demonstrators and others, a total of 712. Three years of collegiate work is required for admission. The work covers four years of eight months each. The total fees for the four years, respectively, are $545, $530, $530 and $550. The registration for 1937-1938 was 405; graduates, 90. The next session begins Sept. 22, 1938, and ends June 6, 1939. The Dean is Willard C. Rappleye, M.D.

CORNELL UNIVERSITY MEDICAL COLLEGE, 1300 York Avenue.—The first year was given at New York and Ithaca but beginning with the session 1938-1939 the entire course will be given in New York. Organized in 1898. Coeducational since organization. The faculty is composed of 120 professors and 288 assistants, lecturers, instructors and others, a total of 408. All candidates for admission must be graduates of approved colleges or scientific schools, or seniors of approved colleges that will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the baccalaureate degree on the completion of the first year's work. The fees for each of the four years are, respectively, $510, $500, $510 and $525. The registration for 1937-1938 was 283; graduates, 66. The next session begins Sept. 21, 1938, and ends June 7, 1939. The Dean is William S. Ladd, M.D.

NEW YORK MEDICAL COLLEGE AND FLOWER HOSPITAL, Fifth Avenue at 105th Street.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869; the title New York Homeopathic Medical College and Hospital in 1887; the title New York Homeopathic Medical College and Flower Hospital in 1908; present title May 11, 1936. The first class graduated in 1861. Coeducational since 1919. A baccalaureate degree or its equivalent required for admission. The course covers four years of eight months each. It has a faculty of 69 professors and associate professors, 22 assistant professors and 217 lecturers and assistants, a total of 308. The total fees for the four years are, respectively, $645, $635, $635 and $665. The registration for 1937-1938 was 268; graduates, 57. The next session begins Sept. 19, 1938, and ends June 6, 1939. The Dean is Claude A. Burrett, M.D.

NEW YORK UNIVERSITY COLLEGE OF MEDICINE, 477 First Avenue.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. Named University and Bellevue Hospital Medical College from 1898 to February 1935 when it was changed to New York University College of Medicine. First class graduated in 1899. Coeducational since 1919. The faculty is composed of 136 professors, associate, assistant, clinical and assistant clinical professors, and 312 lecturers, instructors and others, a total of 448. The course covers four years. Entrance requirements are that all candidates must be graduates of approved colleges or scientific schools, or seniors in good standing in approved colleges or scientific schools on condition that their faculty will permit them to substitute the first year in the New York University College of Medicine for the fourth year of their college course and will confer the bachelor's degree on the satisfactory completion of the year's work. The fees for each of the four years is $600. The next session begins Sept. 14, 1938, and ends June 7, 1939. The registration for 1937-1938 was 496; graduates, 124. The Dean is Currier McEwen, M.D.

Rochester

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE, Elmwood Avenue and Crittenden Boulevard.—Organized in 1925 as the Medical Department of the University of Rochester. Coeducational since organization. The faculty is composed of 60 professors, 175 lecturers, assistants, instructors and others, a total of 235. The work embraces a graded

course of four years of nine months each. Three years of collegiate work is required for admission. The total fees for each year are $500, The registration for 1937-1938 was 177; graduates, 39. The next session begins Sept. 19, 1938, and ends June 17, 1939. The Dean is George Hoyt Whipple, M.D.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. The faculty is composed of 46 professors and 160 associate and assistant professors, lecturers and instructors, a total of 206. Three years of a recognized college course is required for admission. The course covers four years of thirty-four weeks each. The fee for each of the first three years is $500; for the fourth year, $510. The enrolment for 1937-1938 was 176; graduates, 36. The next session begins Sept. 22, 1938, and ends June 5, 1939. The Dean is H. G. Weiskotten, M.D.

NORTH CAROLINA

Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Coeducational since 1914. Three years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the first year. The faculty is composed of 14 professors and 7 instructors, a total of 21. The fees for each year are $295 for residents; nonresidents, an additional fee of $100. The registration for 1937-1938 was 65. The next session begins Sept. 15, 1938, and ends June 6, 1939. The Dean is Wm. deB. MacNider, M.D.

Durham

DUKE UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1925. The first class was admitted, Oct. 1, 1930. Coeducational. The faculty is composed of 11 professors and 106 associate and assistant professors, lecturers, instructors and assistants, a total of 117. The entrance requirements are seventy hours of collegiate work. The academic year consists of four quarters of eleven weeks each. Students either may study four quarters each year after the first year, and if satisfactory will receive the M.D. certificate after three and one quarter calendar years, or three quarters in each year, and if satisfactory will be graduated after four calendar years. The B.S. degree in medicine may be conferred for special work after six quarters. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. The fees are $450 for each year of three quarters. The registration for 1937-1938 was 252; graduates, 47. The next session begins Sept. 29, 1938, and ends June 5, 1939. The Dean is Wilburt C. Davison, M.D.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICAL SCIENCES.—Organized in 1902. The faculty numbers 11 professors, 2 assistant professors, and 7 instructors, making a total of 20. Coeducational since 1927. The name was changed from the School of Medicine to the School of Medical Sciences in 1937, in view of the fact that it offers only the first two years of the medical course, which is made up largely of the medical sciences. Ninety semester hours of collegiate work is required for admission. Each annual course extends over nine months. The fees for each of the two years are $300. The registration for 1937-1938 was 41. The next session begins Sept. 14, 1938, and ends May 30, 1939. The Dean is C. C. Carpenter, M.D.

NORTH DAKOTA

Grand Forks

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Three years' work in a college of liberal arts is required for admission. The B.S. degree in combined arts-medical course is conferred at the end of the second year. The faculty consists of 8 professors and 8 instructors, a total of 16. The fees are $75 each year for resident students and $165 for nonresidents. The registration for 1937-1938 was 48. The next session begins Sept. 19, 1938, and ends June 6, 1939. The Dean is H. E. French, M.D.

OHIO

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden and Bethesda Avenues. Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged with the University when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Coeducational since organization. Candidates for admission to the freshman class must present three years of college preparation of not less than ninety hours. All candidates taking premedical work at the College of Liberal Arts, University of Cincinnati, must sign up for the seven-year combined course, and at the end of one year of satisfactory work in the College of Medicine the B. S. degree is granted by the College of Liberal Arts. The faculty consists of 50 professors and associates, 412 assistants, etc., a total of 462. The course covers four years of eight months each, on the completion of which the M.B. degree is granted. A year's internship in an approved hospital is required, on completion of which the M.D. degree is granted. Beginning with the fall session of 1938-1939 the fees are as follows: For legal residents of Cincinnati, $450 a year, plus laboratory fees, ($50 additional for those not legal residents of Cincinnati). The registration for 1937-1938 was 294; graduates, 72. The next session begins Sept. 23, 1938, and ends June 9, 1939. The Dean is Alfred Friedlander, M.D.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 2109 Adelbert Road.—Organized in 1843 as the Cleveland Medical College in cooperation with Western Reserve College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Coeducational since 1919. The faculty includes 84 professors and 228 lecturers, assistants and others, a total of 312. The curriculum covers three years of nine months each and one year of ten months. Three years of collegiate work is required for admission and a baccalaureate degree for graduation. The total fees for each of the four years are, respectively, $442, $425, $415 and $425. The registration for 1937-1938 was 270; graduates, 63. The next session begins Sept. 22, 1938, and ends June 14, 1939. The Dean is Torald Sollmann, M.D.

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, Neil and Eleventh Avenues.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized in 1847 by charter granted by the State Legislature changing the name from Willoughby Medical College, which was chartered March 3, 1834) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. Coeducational since organization. The faculty consists of 68 professors, associate and assistant professors, 84 lecturers, instructors, demonstrators and others, a total of 152. Three years of collegiate work is required for admission. The course covers four years of thirty-four weeks each. Tuition fees are $246, $231, $231 and $231 each year, respectively, for residents of Ohio, and $150 additional for nonresidents. The registration for 1937-1938 was 331; graduates, 92. The next session begins Oct. 4, 1938, and ends June 12, 1939. The Dean is J. H. J. Upham, M.D.

OKLAHOMA

Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE.—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910, when a clinical department was established at Oklahoma City. The first class graduated in 1911. Coeducational since organization. Since September, 1928, the entire course has been given at Oklahoma City. It has a faculty of 29 professors, 30 associate professors, 18 assistant professors, 38 associates, 14 lecturers, 40 instructors, and 16 assistants, a total of 185. Two years of collegiate work is required for admission. The entrance requirement will be raised to three years effective September 1939. The B.S. in medicine degree is conferred at the end of the second year. The course covers four years of nine months each. The total fees for the four years are, respectively, $128, $95, $53 and $58. For students residing outside of the State of Oklahoma there is an additional fee of $250 a year. The registration for 1937-1938 was 223; graduates, 52. The next session begins Sept. 19, 1938, and ends June 5, 1939. The Dean is Robert U. Patterson, M.D.

OREGON

Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL, Marquam Hill.—Organized in 1887. The first class graduated in 1888, and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Coeducational since organization. It has a faculty of 79 professors and 190 lecturers, assistants and others, a total of 269. Entrance requirements are three years of collegiate work. The course covers four years of thirty-three weeks each. The total fees for the four years are, respectively, $320, $315, $310 and $316 for residents of Oregon, and $60 a year additional for nonresidents. The registration for 1937-1938 was 253; graduates, 55. The next session begins Oct. 3, 1938, and ends June 3, 1939. The Dean is Richard B. Dillehunt, M.D.

PENNSYLVANIA

Philadelphia

THE HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA, 235 North Fifteenth Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Two years of collegiate work in a college of arts and science is required for admission. It has a faculty of 90 professors and 125 lecturers, instructors, and others, a total of 215. The work covers four years of eight months each. Fees for each of the four years are, respectively, $515, $512, $512 and $535. The registration for 1937-1938 was 548; graduates, 129. The next session begins Oct. 3, 1938, and ends June 15, 1939. The Dean is William A. Pearson, M.D.

JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, 1025 Walnut Street.—Organized in 1825 as the Medical Department of Jefferson College, Canonsburg, Pa. It was chartered with its present title in 1838. Classes have been graduated annually beginning 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a

faculty of 77 professors, associate and assistant professors and 172 associates, lecturers, demonstrators and instructors, a total of 249. Four years of college work and a bachelor's degree are required for admission. The course of study covers four years of eight and one-half months each. The total fees for the four years are, respectively, $445, $435, $425 and $425. The registration for 1937-1938 was 498; graduates, 134. The next session begins Sept. 20, 1938, and ends June 2, 1939. The Dean is Henry K. Mohler, M.D.

TEMPLE UNIVERSITY SCHOOL OF MEDICINE, Broad and Ontario Streets.—Organized in 1901. The first class graduated in 1904. Coeducational since organization. The faculty numbers 33 professors and 196 associates, assistants and others, a total of 229. Three years of collegiate work is required for admission. The fees for each of the four years, respectively, are $485, $455, $435 and $455. The registration for 1937-1938 was 441; graduates, 113. The next session begins Sept. 21, 1938, and ends June 15, 1939. The Dean is William N. Parkinson, M.D.

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE, Thirty-Sixth and Pine Streets.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772 and 1775-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. Coeducational since 1914. The faculty consists of 108 professors, associate and assistant professors, and 346 lecturers, associates, instructors and others, a total of 454. Three years of collegiate work is required for admission. The course covers four years of thirty-three weeks each. The tuition fee is $500 each year, with a deposit fee of $15, a general fee including student health of $15 and a matriculation fee of $5. The registration for 1937-1938 was 500; graduates, 139. The next session begins Sept. 26, 1938, and ends June 14, 1939. The Dean is William Pepper, M.D.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Henry Avenue and Abbottsford Road, East Falls.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 48 professors and 69 assistants, lecturers, and others, in all, 117. Three years of collegiate work is required for admission. The curriculum covers four years of eight and one-half months each. Total fees for each of the four years are, respectively, $440, $433, $433 and $455. The registration for 1937-1938 was 106; graduates, 25. The next session begins Sept. 21, 1938, and ends June 14, 1939. The Dean is Martha Tracy, M.D.

Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, Bigelow Boulevard.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. Coeducational since 1899. The faculty is composed of 29 professors and 282 associates, assistants and others, a total of 311. Entrance requirements are two years of collegiate work. The course of study is four years of eight months each. The total fees for the four years, respectively, are $500, $485, $485 and $500. The registration for 1937-1938 was 230; graduates, 61. The next session begins Sept. 19, 1938, and ends June 14, 1939. The Acting Dean is W. S. McEllroy, M.D.

SOUTH CAROLINA

Charleston

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. Coeducational from 1895 to 1912, when privileges for women were withdrawn, being restored in 1917. It has a faculty of 41 professors and 37 lecturers, instructors and others, a total of 78. The course covers four years of eight months each. Three years of collegiate work is required for admission. The total fees are $270 each year. Fees for nonresidents of the state, $420 each year. The enrolment for 1937-1938 was 164; graduates, 42. The next session begins Sept. 22, 1938, and ends June 1, 1939. The Dean is Robert Wilson, M.D.

SOUTH DAKOTA

Vermilion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICAL SCIENCES.—Organized in 1907. Coeducational since organization. Offers only the first two years of the medical course. Three years' work in a college of liberal arts is required for admission. Students who complete the third year of premedical work in the College of Arts and Sciences at the University of South Dakota may apply the work of the first year of medicine to the A.B. degree. The B.S. degree is conferred at the end of the second year on those students who do not hold a previous Bachelor's degree. The faculty numbers 14. The tuition is $100 each year for residents and $200 for nonresidents. The registration for 1937-1938 was 31. The next session begins Sept. 14, 1938, and ends June 5, 1939. The Dean is Joseph C. Ohlmacher, M.D.

TENNESSEE

Memphis

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, 874 Union Avenue.—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennesee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicans and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Coeducational since 1911. The faculty includes 101 professors and 136 assistants, instructors and others, a total of 237. Two years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the second year. The fees are $120 quarterly. For residents of the state the charge is reduced $50 each quarter. The registration for 1937-1938 was 437; graduates, 105. During the academic year of 1938-1939 the quarters begin July 6, Sept. 22, Dec. 30 and March 20, and end Sept. 21, Dec. 14, March 18 and June 10. The Dean is O. W. Hyman, Ph.D.

Nashville

MEHARRY MEDICAL COLLEGE, Eighteenth Avenue North and Heffernan Street. (For Negro Youth).—This school was organized in 1876 as the Meharry Medical Department of Central Tennessee college, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Coeducational since 1876. The faculty is made up of 32 professors and 25 instructors, demonstrators, lecturers and others, 57 in all. Two years' work in a college of liberal arts is required for admission. The curriculum covers four years of thirty-two weeks each. Tuition fees are, respectively, $295, $275, $275 and $285 each year. The registration for 1937-1938 was 206; graduates, 35. The next session begins Oct. 1, 1938, and ends June 2, 1939. Dean is Edward L. Turner, M.D.

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, Twenty-First Street at Edgehill.—This school was founded in 1874. The first class graduated in 1875. Coeducational since September 1925. The faculty numbers 223. For matriculation, students must be graduates of collegiate institutions of recognized standing or seniors in absentia, who will receive the bachelor degree from their college after having completed successfully at least one year of work in the school of medicine. The course covers four years of nearly nine months each. The total fees for the four years, respectively, are $415, $415, $415 and $420. The registration for 1937-1938 was 199; graduates, 48. The next session begins Sept. 27, 1938, and ends June 14, 1939. The Dean is Waller S. Leathers, M.D.

TEXAS

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 810 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. Coeducational since organization. The first class graduated in 1901. The faculty consists of 99 professors and 95 instructors and assistants, a total of 194. Entrance requirements are two years of collegiate work. The course covers four years of eight months each. The fees for each of the four years, respectively, are $364, $354, $349 and $374. The registration for 1937-1938 was 302; graduates, 73. The next session begins Oct. 1, 1938, and ends June 5, 1939. The Dean is W. H. Moursund, M.D.

Galveston

UNIVERSITY OF TEXAS SCHOOL OF MEDICINE, 912 Avenue B.—Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 41 professors and 16 lecturers and instructors, a total of 57. The curriculum covers four years of eight months each. The entrance requirement is three years of collegiate work. The total fees for the four years, respectively, are $88, $92, $100 and $102. There is a matriculation fee of $50 for each year. The registration for 1937-1938 was 371; graduates, 80. The next session begins Oct. 1, 1938, and ends May 31, 1939. The Dean is W. S. Carter, M.D.

UTAH

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE.—Organized in 1906. Coeducational since organization. Gives only first two years of medical course. Each school year covers thirty-six weeks. Three years of collegiate work is required for admission. The medical faculty consists of 8 professors, 3 instructors, 16 lecturers, demonstrators and fellows and 2 technicians; a total of 29. The fees per year are $229. There is a nonresident fee of $25 per quarter. The registration for 1937-1938 was 58. The next session begins Sept. 26, 1938, and ends June 2, 1939. The Dean is L. L. Daines, M.D.

VERMONT

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 48 professors and 31 lecturers, instructors, preceptors and others, a total of 79. Two years of collegiate work is required for admission. The course of study covers four years of nine months each. For residents of Vermont the tuition fee is $300 each session. Nonresidents are charged an additional $75 each session. A student activity fee of $30 is charged all students not holding academic degrees or in attendance four years previously, and a $25 fee for the doctor's degree. The registration for 1937-1938 was 144; graduates, 38. The next session begins Sept. 16, 1938, and ends June 12, 1939. The Chairman of the Committee of Administration is E. H. Buttles, M.D.

VIRGINIA

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session of 1920-1921. It has a faculty of 38 professors and 37 lecturers, instructors, assistants and others, a total of 75. Two years of collegiate work is required for admission. For residents of Virginia the total fees for the four years, respectively, are $414, $391, $366 and $361. Nonresidents are charged an additional $50 each year. The registration for 1937-1938 was 247; graduates, 56. The next session begins Sept. 15, 1938, and ends June 12, 1939. The Dean is J. Carroll Flippin, M.D.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Twelfth and Clay Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 68 professors and 107 lecturers, instructors and others, a total of 175. Three years of collegiate work is required for admission. The course covers four years of eight and one-half months each. Total fees for the four years, respectively, are $338, $338, $323 and $353. Nonresidents are charged an additional $125 each year. The registration for 1937-1938 was 295; graduates, 76. The next session begins Sept. 6, 1938, for the first year class; Sept. 16, 1938, for all other classes, and ends June 6, 1939. The Dean is Lee E. Sutton Jr., M.D.

WEST VIRGINIA

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1902, gives the first two years of the medical course. Coeducational since organization. Three years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the second year. Session extends through nine months. Faculty numbers 24. Fees for residents of the state, $254; nonresidents, $404, each year. The registration for 1937-1938 was 41. The next session begins Sept. 13, 1938, and ends June 3, 1939. The Dean is Edward J. Van Liere, M.D.

WISCONSIN

Madison

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL, 412 North Charter Street.—Organized in 1907. Gave only the first two years of the medical course until 1925, when the clinical years were added. Coeducational since organization. Three years of collegiate work are required for admission. The B.S. degree in medical science is conferred at the end of the first year. It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131. The fees for each year are, respectively, $212, $192, $165 and $110. An additional fee of $200 each year is charged nonresidents. The registration for 1937-1938 was 298; graduates, 52. The next session begins Sept. 21, 1938, and ends June 19, 1939. The Dean is William S. Middleton, M.D.

Milwaukee

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE, 561 North Fifteenth Street.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 159. Three years of collegiate work is required for admission. The curriculum covers four years of eight and a half months each, and one year's internship in an approved hospital. The fees for the first year are $412; for each of the three following years, $400. The registration for 1937-1938 was 324; graduates, 65. The next session begins Sept. 26, 1938, and ends June 14, 1939. The Dean is Eben J. Carey, M.D.

CANADA

Alberta

UNIVERSITY OF ALBERTA FACULTY OF MEDICINE, Edmonton.—Organized in 1913. Coeducational since organization. Has given the complete six-year medical course since 1924. The faculty includes 23 full time and 40 part time professors, instructors, assistants and others, a total of 63. Tuition for the first year is $150, for the second, third and fourth years, $215; for the fifth and sixth years, $225. The registration for 1937-1938 was 221; graduates, 31. The next session begins Sept. 27, 1938, and ends April 30, 1939. The Dean is Allan C. Rankin, M.D.

Manitoba

UNIVERSITY OF MANITOBA FACULTY OF MEDICINE, Bannatyne Avenue, Winnipeg. Organized in 1883 as Manitoba Medical College; first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 26 professors and 80 instructors and assistants, total of 106. Matriculation requirements include two years of collegiate work in the faculty of arts and science of a recognized university. The course extends over four years of eight months each and a hospital internship. The total fees for the five years, respectively, are $276, $271, $271, $271 and $145. The registration for 1937-1938 was 222; graduates 49. The next session begins Sept. 16, 1938, and ends May 18, 1939. The Dean is A. T. Mathers, M.D.

Nova Scotia

DALHOUSIE UNIVERSITY FACULTY OF MEDICINE, Halifax.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the university. First class graduated in 1872. Coeducational since 1871. It has a faculty of 26 professors and 40 demonstrators, lecturers and others, a total of 66. Requires for matriculation two years of arts. The medical course covers four years and a hospital internship of one year. The fees are $317, $317, $317, $307 and $307 for each year, respectively; $250 additional registration fee payable by students outside the British Empire. The registration for 1937-1938 was 178; graduates, 32. The next session begins Sept. 13, 1938, and ends May 16, 1939. The Dean is H. G. Grant, M.D.

Ontario

QUEEN'S UNIVERSITY FACULTY OF MEDICINE, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 56. The fee for the first year is $208 and $230 for each of the other five years. The course covers six years of thirty teaching weeks each. The registration for 1937-1938 was 292; graduates, 54. The next session begins Sept. 29, 1938, and ends May 24, 1939. The Dean is Frederick Etherington, M.D.

UNIVERSITY OF TORONTO FACULTY OF MEDICINE, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University, Medical Department, and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The course of study covers six years of eight months each. The B.Sc. (Med.) degree is conferred at the end of the third or sixth year. It has a faculty of 71 professors and 363 lecturers, associates and others, a total of 434. The fees are $201 for the first year; for the second, $376; $271 for the third year; $296 for the fourth and fifth years, and $328 for the sixth year. The registration for 1937-1938 was 811; graduates, 119. The next session begins Sept. 27, 1938, and ends May 13, 1939. The Dean is W. E. Gallie, M.D.

UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL, Ottaway Avenue, London.—Organized in 1881 as the Western University Faculty of Medicine; first class graduated in 1883, and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 88. The course of study covers six years of eight months each. The total fees to residents of Canada for the last four years, respectively, are $225, $225, $233 and $258. The registration for 1937-1938 was 212; graduates, 33. The next session begins Sept. 19, 1938, and ends May 13, 1939. The Dean is F. J. H. Campbell, M.D.

Quebec

LAVAL UNIVERSITY FACULTY OF MEDICINE, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Laval University Faculty of Medicine; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 81. The fees for each of the medical years are $175 for residents of Canada. Nonresidents are charged an extra fee of $175 each year. The premedical requirement is a B.A. degree or its equivalent. The registration for 1937-1938 was 307; graduates, 41. The next session begins Sept. 20, 1938, and ends May 31, 1939. The Dean is P. C. Dagneau, M.D.

MCGILL UNIVERSITY FACULTY OF MEDICINE, 3640 University Street, Montreal.—Founded in 1823 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-1839, owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop's College. Coeducational since 1919. Three years of collegiate work is required for admission. The length of the medical course is four years followed by one year of internship. The faculty consists of 55 professors and 161 lecturers and others, a total of 216. The total fees for each of the four medical years are $393. The registration for 1937-1938 was 477; graduates, 97. The next session begins Sept. 1, 1938, and ends June 1, 1939. The Dean is A. Grant Fleming, M.D.

UNIVERSITY OF MONTREAL, FACULTY OF MEDICINE, 1265 St. Denis Street, Montreal.—Organized in 1843 as the Montreal School of Medicine and Surgery. In 1891, by act of Parliament, The Medical Faculty of Laval University (organized in 1878) was absorbed. Present name by act of Parliament in 1920. A class was graduated in 1843 and each subsequent year. Coeducational since 1925. The faculty numbers 125. B.A. or B.S. degree, or equivalent, is a prerequisite to our premedical year, which itself precedes a five year medical course. The total fees for each of the five years respectively are $246, $227, $267, $240 and $218. The registration for 1937-1938 was 187; graduates 41. The next session begins Sept. 15, 1938, and ends June 15, 1939. The Director of Studies is George H. Baril, M.D., and the Dean is Albert Le Sage, M.D.

Saskatchewan

UNIVERSITY OF SASKATCHEWAN SCHOOL OF MEDICAL SCIENCES, Saskatoon.—Organized in 1926. Coeducational. Offers the first two years of the medical course. Students require three more years of medicine for graduation. Two years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the second year. The medical faculty includes 7 professors and 3 lecturers and assistants, a total of 10. The fees are $150 for each year. The registration for 1937-1938 was 47. The next session begins Sept. 26, 1938, and ends May 12, 1939. The Dean is W. S. Lindsay, M.B.

HOSPITALS APPROVED FOR TRAINING INTERNS

The following general hospitals containing 227,821 beds are considered in position to furnish acceptable internships for medical graduates. These hospitals are automatically approved for general, or mixed, residency training.

HOSPITALS, 729. INTERNSHIPS, 7,354

The terms used in the column "Type of Internship" are defined as follows:

1. Rotating internships include services in medicine, surgery, pediatrics, obstetrics and in the clinical and x-ray laboratories.
2. Straight internships are limited to a single field.
3. Mixed internships are those comprising more than one service but which do not include all of the six branches which constitute a rotating internship.

ABBREVIATIONS

Army	United States Army	Fed	Federal	Part	Partnership
CyCo	City and County	Frat	Fraternal	Req	Required
Corp	Corporation unrestricted as to profit	Indiv	Individual	USPHS	United States Public Health Service
		NPAssn	Nonprofit association		
		Op	Optional		

Name of Hospital	Location	Control	Capacity	Classification of Patients (Percentage) Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
ALABAMA															
Hillman Hospital	Birmingham	County	474	100			10,537	Mixed	20	24	July	No	Req	28	(c)
Norwood Hospital	Birmingham	NPAssn	226	6	10	84	5,843	Rotating	4	12	July	No	Req	34	$25
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company	Fairfield	NPAssn	310			100	7,519	Rotating	10	12	July	No	Req	38	$25
ARIZONA															
St. Joseph's Hospital	Phoenix	Church	205	10	30	60	7,188	Rotating	6	12	July	No	None	26	$25
ARKANSAS															
Baptist State Hospital	Little Rock	Church	315	15	11	74	4,174	Rotating	4	12	July	(3)	None	20	$25
Little Rock City Hospital [1]	Little Rock	City	195	100			2,037	Rotating	5	12	July	No	Req	25	$25
St. Vincent's Infirmary	Little Rock	Church	150	11	27	62	4,023	Rotating	3	12	June	No	None	20	$25
CALIFORNIA															
Fresno County General Hospital	Fresno	County	520	99	1		8,056	Rotating	10	12	July	No	Req	30	$25
Glendale Sanitarium and Hospital [1]	Glendale	Church	216	1	18	81	3,451	Mixed	4	12	July	No	Req	25	$52.50(a)
Loma Linda Sanitarium and Hospital	Loma Linda	Church	124	1	13	86	2,965	Mixed	4	12	July	(4)	Req	21	$50(a)
California Hospital [1]	Los Angeles	Church	292	7	62	31	8,316	Rotating	12	12	(1-a)	No	Req	15	$25
Cedars of Lebanon Hospital	Los Angeles	NPAssn	288	19	4	77	7,988	Rotating	9	12	July	No	Req	41	$20
Los Angeles County Hospital [1]	Los Angeles	County	3,306	100			53,717	Mixed	125	24	July	No	Req	39	$10
Presbyterian Hosp.—Olmsted Memorial	Los Angeles	NPAssn	280			100	7,175	Rotating	5	12	July	No	None	18	$25
Queen of Angels Hospital [1]	Los Angeles	Church	257	32	33	35	6,546	Rotating	8	12	July	(123)	Req	18	$20
St. Vincent's Hospital	Los Angeles	Church	250	5	5	90	6,397	Rotating	5	12	July	No	None	50	$40
Santa Fe Coast Lines Hospital	Los Angeles	NPAssn	150			*	2,392	Rotating	6	12	July	(5)	Req	75	$25
White Memorial Hospital [1]	Los Angeles	Church	203	2	38	60	5,288	Rotating	16	12	July	No	Req	42	$44(a)
U. S. Naval Hospital	Mare Island	Navy	506	88		12	2,523	Rotating	3	12	July	No	Op	73	(b)
Alameda County Hospital [1]	Oakland	County	420	100			10,797	Rotating	24	12	July	(6)	Req	50	$20
Orange County Hospital	Orange	County	353	92	8		3,496	Rotating	8	12	July	No	Req	59	$15-20
Collis P. and Howard Huntington Memorial Hospital	Pasadena	NPAssn	198	5	19	76	5,661	Rotating	5	12	Jan. & July	(7)	Req	60	$30
Sacramento County Hospital	Sacramento	County	500	100			7,512	Rotating	10	12	July	No	Req	33	$35
San Bernardino County Charity Hosp.	San Bernardino	County	325	100			3,961	Rotating	8	12	July	(4)	Req	28	$25
San Diego County General Hospital	San Diego	County	663	100			8,909	Rotating	13	12	July	No	Req	37	$30
U. S. Naval Hospital	San Diego	Navy	1,000	100			6,977	Rotating	5	12	Aug.	(8)	Req	84	(b)
Franklin Hospital [1]	San Francisco	NPAssn	244	1	21	78	4,427	Rotating	9	12	July	No	Req	36	$25
French Hospital	San Francisco	Frat	220	1	2	97	3,538	Rotating	7	12	July	No	Req	47	$30(d)
Hospital for Children [2]	San Francisco	NPAssn	246	4	15	81	5,669	Rotating	9	12	July	No	Req	47	No
Mary's Help Hospital	San Francisco	Church	145	5	17	78	4,141	Rotating	5	12	July	No	Req	36	$25
Mount Zion Hospital [1]	San Francisco	NPAssn	189	16	10	74	4,012	Rotating	7	12	June	No	Req	54	$15
St. Joseph's Hospital	San Francisco	Church	236	3	9	91	7,296	Rotating	5	12	July	No	None	20	$20
St. Luke's Hospital	San Francisco	Church	225	8	7	85	5,417	Rotating	4	12	July	No	Op	46	$15(e)
St. Mary's Hospital	San Francisco	Church	325	2	20	78	7,499	Rotating	7	12	July	No	Req	24	$25
San Francisco Hospital [1]	San Francisco	CyCo	1,566	100			13,276	Rotating	49	12	July	(9)	Req	37	$10
Southern Pacific General Hospital	San Francisco	NPAssn	400			*	5,143	Rotating	15	12	July	(10)	Req	58	$30
Stanford University Hospital [1] (including Lane Hospital)	San Francisco	NPAssn	324	3	51	46	9,557	Straight	15	12	July	No	Req	46	No
U. S. Marine Hospital	San Francisco	USPHS	478	100			4,006	Rotating	12	12	July	(11)	Op	57	(b)
University of California Hospital [1]	San Francisco	State	303	64		36	6,386	Straight	20	12	June	No	Req	69	No
Santa Clara County Hospital	San Jose	County	439	100			6,115	Rotating	8	12	July	No	Req	50	$20(e)
St. Francis Hospital	Santa Barbara	Church	100	13	9	78	1,965	Rotating	4	12	July	(13)	Req	45	$15
Santa Barbara Cottage Hospital [1]	Santa Barbara	NPAssn	210			100	3,571	Mixed	6	12	July	No	None	56	$20
Santa Barbara General Hospital	Santa Barbara	County	245	96	3	1	2,069	Rotating	5	12	July	No	Req	73	$15
COLORADO															
Boulder-Colorado Sanit. and Hosp. [1]	Boulder	Church	107	2	5	93	1,243	Mixed	2	12	July	(14)	Op	33	$35
Beth-El General Hospital and Sanit. [1]	Colorado Springs	Church	176	25	25	50	2,347	Rotating	2	12	June	No	None	15	$20
St. Francis Hospital and Sanatorium	Colorado Springs	Church	149	1	56	43	1,140	Rotating	2	12	July	No	None	31	$25
Colorado General Hospital [1]	Denver	State	180	61	39		3,558	Rotating	12	12	July & Aug.	No	Req	75	$20
Denver General Hospital	Denver	CyCo	607	100			17,304	Rotating	15	18	Jan. & July	No	Req	40	$30
Mercy Hospital	Denver	Church	225	12	55	33	6,081	Rotating	5	12	July	No	None	25	$25
Presbyterian Hospital	Denver	Church	175	3	13	84	5,099	Mixed	4	12	July	No	None	32	$25
St. Anthony Hospital	Denver	Church	184	10	82	8	2,981	Rotating	3	12	July	No	None	20	$25
St. Joseph's Hospital	Denver	Church	285	35	24	41	5,059	Rotating	5	12	July	No	Req	24	$25
St. Luke's Hospital	Denver	Church	249		52	48	6,764	Rotating	8	12	July	No	None	31	$25
St. Mary Hospital	Pueblo	Church	165	4	67	29	2,205	Rotating	2	12	July	No	None	37	(f)
CONNECTICUT															
Bridgeport Hospital	Bridgeport	NPAssn	400	36		64	10,736	Rotating	10	12	July	No	None	36	$10
St. Vincent's Hospital [1]	Bridgeport	Church	320	16	49	35	5,983	Rotating	7	12	July	No	Req	22	$20
Danbury Hospital	Danbury	NPAssn	161	13	56	31	3,264	Rotating	3	12	July	No	None	47	$40
Hartford Hospital	Hartford	NPAssn	773	4	50	46	17,566	Rotating	24	24	July	No	None	45	No
Municipal Hospitals	Hartford	City	340	100			5,405	Rotating	10	24	July	No	Req	32	$10

Numerical and other references will be found on page 831.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
CONNECTICUT—Continued															
St. Francis Hospital	Hartford	Church	496	4	26	70	10,001	Rotating	9	12	July	No	Req	22	$10
Meriden Hospital [1]	Meriden	NPAssn	140	8	86	6	2,597	Rotating	4	12	July	No	None	22	$15(g)
Middlesex Hospital	Middletown	NPAssn	160	15	43	42	3,433	Rotating	3	12	June & July	No	None	19	$20(h)
New Britain General Hospital	New Britain	NPAssn	255	15	68	17	5,605	Rotating	6	12	July	No	Req	15	$30
Grace Hospital	New Haven	NPAssn	287	10	45	45	6,721	Rotating	11	24	July	No	Req	29	$10
Hospital of St. Raphael	New Haven	Church	277	30	34	36	6,815	Rotating	8	12	July	No	Req	41	$20
New Haven Hospital [1]	New Haven	NPAssn	560	34	42	24	8,335	Mix&Str	31	12-20	(1-b)	No	Req	60	No
Lawrence and Memorial Associated Hospitals	New London	NPAssn	237	25	14	61	3,816	Rotating	4	12	July	No	Req	23	$22.50
Norwalk General Hospital	Norwalk	NPAssn	181	15	53	32	3,951	Rotating	4	12	Jan. & July	No	Op	42	$50
William W. Backus Hospital	Norwich	NPAssn	150	6	74	20	3,336	Rotating	3	12	July & Sept.	No	Req	27	$10
Stamford Hospital	Stamford	NPAssn	260	8	70	22	4,625	Rotating	6	18	Jan. & July	No	Req	15	$45
St. Mary's Hospital [1]	Waterbury	Church	264	18	52	30	8,288	Rotating	7	12	July	No	Req	28	$25
Waterbury Hospital	Waterbury	NPAssn	315	15	78	7	5,495	Rotating	7	12	July & Oct.	No	Req	36	$25
DELAWARE															
Delaware Hospital	Wilmington	NPAssn	225	53	10	37	4,781	Rotating	7	12	July	No	Req	23	$25
Homoeopathic Hospital	Wilmington	NPAssn	198	35	15	50	4,355	Rotating	6	12	July	No	Req	25	$25
Wilmington General Hospital	Wilmington	NPAssn	213	40	2	58	3,109	Rotating	4	12	July	(12)	Req	27	$15(i)
DISTRICT OF COLUMBIA															
Central Disp. and Emergency Hosp.	Washington	NPAssn	280	17	10	73	7,953	Mixed	13	12	June	No	Req	37	$10
Freedmen's Hospital [1] (col.)	Washington	Fed	376	85		15	5,353	Rotating	25	12	July & Oct.	No	Req	41	$10
Gallinger Municipal Hospital [1]	Washington	City	1,236	99		1	17,653	Rotating	24	12	July	(15)	None	38	$15
Garfield Memorial Hospital [1]	Washington	NPAssn	311		25	75	6,691	Mixed	10	12	July	No	Req	42	$10(h)
Georgetown University Hospital	Washington	NPAssn	261	6	37	57	6,001	Rotating	11	12	July	(16)	Req	32	$10
George Washington University Hosp. [1]	Washington	NPAssn	114		12	88	2,649	Rotating	5	12	July	No	Req	54	$15
Providence Hospital	Washington	Church	290	25	40	35	6,622	Rotating	10	24	July	No	Req	24	$10
St. Elizabeths Hospital, Medical and Surgical Department [1]	Washington	Fed	450	100			1,600	Rotating	8	24	July & Oct.	(17)	Req	63	(b)
Sibley Memorial Hospital [1]	Washington	Church	341	6	10	84	10,093	Rotating	7	12	July	No	Req	35	$20
U. S. Naval Hospital	Washington	Navy	202	100			1,528	Rotating	..	12	July	No	Op	79	(b)
Washington Sanitarium and Hospital, [1] Takoma Park	Washington	Church	185	7	28	65	3,019	Rotating	3	12	July	No	Req	41	$60(a)
FLORIDA															
Duval County Hospital	Jacksonville	County	240	100			4,401	Rotating	6	12	July	No	Req	54	$10
St. Luke's Hospital	Jacksonville	NPAssn	234	20		80	4,304	Rotating	4	12	July	No	None	21	$25
St. Vincent's Hospital	Jacksonville	Church	240	33	5	62	4,486	Rotating	4	12	July	No	None	23	$30
James M. Jackson Memorial Hospital	Miami	City	500	60		40	12,992	Rotating	10	12	July	No	Req	16	$20
Tampa Municipal Hospital	Tampa	City	326	40		60	7,015	Rotating	8	12	July & Sept.	No	Req	17	$25
GEORGIA															
Georgia Baptist Hospital	Atlanta	Church	184	11	17	72	6,539	Mixed	6	12	July	(18)	None	19	$30
Grady Hospitals	Atlanta	City	613	100			20,948	Rotating	45	12	June	No	Req	32	$15
Piedmont Hospital	Atlanta	Corp	135			100	3,873	Rotating	5	12	July	No	None	26	$25
University Hospital [1]	Augusta	City	367	44	7	49	8,266	Rotating	12	12	July	No	Req	32	$10(e)
Emory University Hospital	Emory University	NPAssn	237	5	10	85	5,388	Rotating	7	12	July	(19)	None	31	$30
Macon Hospital	Macon	CyCo	202	72		28	4,621	Rotating	6	12	July	No	Req	21	$25
ILLINOIS															
Alexian Bros. Hosp. (male patients only)	Chicago	Church	257	10	26	64	3,098	Rotating	7	12	July	(20)	None	20	$50
American Hospital [1]	Chicago	NPAssn	170	22	8	70	2,660	Rotating	4	12	July	No	Op	29	No
Augustana Hospital	Chicago	Church	350	16	30	54	5,318	Mixed	10	18	Jan. & July	No	Op	23	No
Chicago Memorial Hospital	Chicago	NPAssn	108	30	58	12	2,786	Rotating	5	12	(1-c)	No	Req	52	$25
Columbus Hospital	Chicago	Church	174	11	65	24	3,471	Rotating	4	12	July	No	None	65	$25
Edgewater Hospital	Chicago	NPAssn	135	14	11	75	4,202	Mixed	5	12	July	No	None	31	$10
Englewood Hospital	Chicago	NPAssn	126	10	30	60	3,407	Rotating	4	12	Jan. & July	No	Req	26	$35
Evangelical Hospital	Chicago	Church	235	15	35	50	7,358	Mixed	6	12	July	No	None	19	$25
Garfield Park Community Hospital	Chicago	NPAssn	182	5	44	51	4,456	Rotating	6	12	July	No	None	19	No
Grant Hospital	Chicago	NPAssn	291	4	8	88	6,605	Rotating	9	12	July	No	Req	31	No
Henrotin Hospital [1]	Chicago	NPAssn	124	5	66	29	2,888	Mixed	6	12	Jan. & July	No	Op	15	No
Holy Cross Hospital	Chicago	Church	169	30	20	50	4,977	Rotating	5	12	July	No	None	34	$15
Hospital of St. Anthony de Padua	Chicago	Church	240	12	10	78	5,768	Rotating	4	14	(1-d)	No	None	25	$10(j)
Illinois Central Hospital	Chicago	NPAssn	275		32	68	5,337	Rotating	8	12	(1-e)	No	Req	22	No
Illinois Masonic Hospital [1]	Chicago	Frat	184	29		71	2,916	Rotating	6	12	Jan. & July	No	Req	31	No
Jackson Park Hospital	Chicago	Corp	265	18	3	79	4,042	Rotating	7	12	Feb. & July	No	Req	27	$10
Lake View Hospital	Chicago	Corp	140	2	5	93	1,827	Rotating	4	12	July	No	None	..	$25
Lutheran Deaconess Home and Hosp.	Chicago	Church	218	4	16	80	5,244	Mixed	6	12	July	No	None	23	$15
Lutheran Memorial Hospital [1]	Chicago	Church	215	5	10	85	3,598	Mixed	4	12	July	No	None	20	$25
Mercy Hospital	Chicago	Church	324	16	14	70	6,518	Rotating	12	12	July	No	Req	27	No
Michael Reese Hospital [1]	Chicago	NPAssn	736	41	36	23	17,830	Rotat&Str	47	12&24	Jan. & July	(21)	Op	50	No
Mother Cabrini Memorial Hospital	Chicago	Church	140	25	60	15	3,250	Rotating	4	12	July	No	None	35	$25
Mount Sinai Hospital	Chicago	NPAssn	220	23	8	69	6,520	Rotating	12	24	June	(21)	Req	38	No
Norwegian-American Hospital [1]	Chicago	NPAssn	168		5	95	2,405	Rotating	6	12	July	No	Req	34	$20
Passavant Memorial Hospital	Chicago	NPAssn	212	7	2	91	4,637	Mixed	6	12	(1-e)	No	Req	54	No
Presbyterian Hospital [1]	Chicago	Church	440	22	46	32	11,188	Mix&Str	26	12-20	(1-d)	No	Op	62	No
Provident Hospital [1] (col.)	Chicago	NPAssn	169	63	4	33	3,481	Rotating	7	12	July & Sept.	No	Req	44	$10
Ravenswood Hospital	Chicago	NPAssn	204	1	8	91	6,015	Rotating	7	12	July	No	None	37	$25
Research and Educational Hospital [1]	Chicago	State	428	100			6,079	Rotating	12	18	Jan. & July	No	Op	88	No
Roseland Community Hospital	Chicago	Corp	124	10	15	75	3,486	Rotating	4	12	July	No	Req	28	$35
St. Anne's Hospital	Chicago	Church	300	5	42	53	7,824	Rotating	8	12	July	No	Req	18	No
St. Bernard's Hospital	Chicago	Church	233	12	14	74	6,956	Rotating	6	12	July	No	None	26	No
St. Elizabeth Hospital	Chicago	Church	340	5	15	80	6,345	Rotating	7	12	July	No	Req	28	No
St. Joseph Hospital	Chicago	Church	290	9	36	55	3,827	Rotating	8	12	Apr. & July	No	Req	36	No
St. Luke's Hospital	Chicago	NPAssn	626	6	4	90	12,068	Rotating	24	12	(1-f)	No	Req	21	No
St. Mary of Nazareth Hospital	Chicago	Church	250	17	9	74	6,575	Rotating	7	12	July	No	None	25	No
South Shore Hospital	Chicago	Corp	125				2,457	Rotating	4	12	July & Sept.	No	None	29	$10
Swedish Covenant Hospital [1]	Chicago	Church	202	1	55	44	4,388	Rotating	6	12	July	No	None	17	$20
U. S. Marine Hospital	Chicago	USPHS	265	100			2,071	Mixed	6	12	July	(22)	Op	66	(b)
University Hospital	Chicago	Corp	121	3	5	92	2,653	Rotating	4	12	July	No	Req	38	$15
University of Chicago Clinics [1]	Chicago	NPAssn	357	38	48	14	6,838	Straight	18	12	Jan. & July	No	Req	71	No
Washington Boulevard Hospital	Chicago	NPAssn	110	5	10	85	2,077	Mixed	6	18	(1-e)	No	Req	40	No
Wesley Memorial Hospital [1]	Chicago	Church	268	23	13	64	3,181	Rotating	8	12	Jan. & July	No	None	47	No
Willard Hospital [1]	Chicago	NPAssn	140	2	86	12	3,627	Rotating	6	12	Jan. & July	No	None	40	No
Women and Children's Hospital [2]	Chicago	NPAssn	150	15	30	55	2,508	Rotating	6	12	Jan. & July	No	Req	67	No
Woodlawn Hospital	Chicago	NPAssn	112	1	67	32	3,233	Rotating	4	12	Jan. & July	No	None	36	$25

Numerical and other references will be found on page 831.

Name of Hospital	Location	Control	Capacity	Classification of Patients (Percentage) Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
ILLINOIS—Continued															
St. Mary's Hospital	East St. Louis	Church	295	25	20	55	4,863	Rotating	5	12	July	No	None	35	$25
Evanston Hospital	Evanston	NPAssn	260	10	46	44	8,604	Rotating	16	16	(1-d)	No	Req	79	No
St. Francis Hospital	Evanston	Church	353	9	43	48	7,318	Rotating	9	12	July	No	None	26	$20
Little Company of Mary Hospital	Evergreen Park	Church	194	6	18	76	6,144	Rotating	5	12	July	No	None	20	$25
St. Joseph's Hospital	Joliet	Church	226	12	9	79	5,124	Rotating	4	12	July	No	None	16	$25
Oak Park Hospital [1]	Oak Park	Church	165	4	5	91	4,439	Rotating	6	12	July	No	Req	19	No
West Suburban Hospital	Oak Park	NPAssn	427	6	23	71	8,264	Rotating	12	12	(1-g)	No	Req	31	No
St. Francis Hospital	Peoria	Church	397	4	17	79	9,935	Rotating	6	12	Jan. & July	No	None	21	$20
St. Mary Hospital	Quincy	Church	215	44	39	17	4,191	Rotating	3	12	July	No	None	17	$25
St. Anthony's Hospital	Rock Island	Church	168	25	40	35	2,486	Mixed	2	12	July	No	Op	25	$25
INDIANA															
St. Catherine's Hospital	East Chicago	Church	250	8	10	82	5,700	Rotating	7	12	July	No	Op	15	$25
Lutheran Hospital	Fort Wayne	Church	165	8	8	84	3,364	Mixed	3	12	July	No	None	16	$25(k)
St. Joseph Hospital	Fort Wayne	Church	285	15	44	41	5,628	Rotating	5	12	July	No	Op	31	$25
St. Mary's Mercy Hospital	Gary	Church	260	2	18	80	7,628	Rotating	6	12	June	No	None	17	$25
St. Margaret's Hospital	Hammond	Church	250	1	75	24	5,129	Rotating	8	12	July & Sept.	No	Req	16	$30
Indianapolis City Hospital	Indianapolis	City	672	88	8	4	10,647	Rotating	32	24	July	No	Req	47	$10.42-20.83
Indiana University Hospitals [1]	Indianapolis	State	504	82	3	15	9,421	Rotating	23	12	July	No	Req	58	$12.50
Methodist Episcopal Hospital	Indianapolis	Church	564	11		89	22,200	Rotating	19	12	July	No	Op	23	$10
St. Vincent's Hospital	Indianapolis	Church	298	20	17	63	7,105	Mixed	10	12	July	No	None	15	$15
St. Elizabeth Hospital	La Fayette	Church	245	16	71	13	4,811	Rotating	6	12	July	No	None	18	$30
Ball Memorial Hospital	Muncie	NPAssn	238			*	4,618	Mixed	6	12	July	No	None	37	$30
Epworth Hospital	South Bend	NPAssn	192	13		87	4,795	Mixed	4	12	July	No	Req	27	$37
St. Joseph's Hospital	South Bend	Church	147	39	27	34	2,710	Mixed	2	12	July	No	Req	39	$25(k)
St. Anthony's Hospital	Terre Haute	Church	199	35	40	25	2,997	Rotating	3	12	July	No	None	18	$25
IOWA															
Mercy Hospital [1]	Cedar Rapids	Church	145	18	23	59	2,796	Rotating	2	12	July	No	Req	23	$25
St. Luke's Methodist Hospital	Cedar Rapids	Church	150	21	49	30	3,516	Rotating	2	12	July	No	None	24	$25
Jennie Edmundson Memorial Hospital	Council Bluffs	NPAssn	131	2	33	65	2,112	Mixed	3	12	July	No	None	36	$25
Mercy Hospital [1]	Council Bluffs	Church	180	13	79	8	2,951	Rotating	4	12	June	No	None	40	$25
Mercy Hospital [1]	Davenport	Church	145	12	18	70	2,988	Rotating	2	12	July	No	None	15	$25
Broadlawns, Polk County Public Hosp.	Des Moines	County	147	95		5	4,033	Rotating	8	24	July	(23)	Req	38	$25
Iowa Lutheran Hospital [1]	Des Moines	Church	145	1	4	95	3,965	Rotating	3	24	July	(23)	Req	17	$25
Iowa Methodist Hospital	Des Moines	Church	271	9	24	67	7,545	Rotating	8	24	July	(23)	Req	44	$25
Mercy Hospital	Des Moines	Church	186	4	28	68	4,163	Rotating	6	24	July	(23)	Req	34	$25
University Hospitals [1]	Iowa City	State	954	86	9	5	20,198	Rotating	20	12	July	No	Req	63	$100 yr.
St. Joseph Mercy Hospital	Sioux City	Church	220	2	11	87	4,458	Rotating	4	12	July	No	Req	32	$25
KANSAS															
Bethany Methodist Hospital [1]	Kansas City	Church	145	4	11	85	2,554	Rotating	3	12	July	No	None	42	$25
Providence Hospital	Kansas City	Church	100	10	31	59	2,724	Mixed	2	12	July	No	None	48	$20
St. Margaret's Hospital	Kansas City	Church	272	30	53	17	4,326	Rotating	6	12	July	No	Req	54	$25
University of Kansas Hospitals [1]	Kansas City	State	325	66	30	4	5,726	Rotating	9	12	July	(24)	Req	82	$15
St. Francis Hospital	Wichita	Church	300	15	25	60	6,030	Rotating	6	12	July	(25)	Req	31	$40
Wesley Hospital	Wichita	Church	237	8	12	80	4,968	Rotating	5	12	July	(26)	Req	34	$25
Wichita Hospital	Wichita	Church	115	9	12	79	2,416	Mixed	2	12	July	No	Req	37	$40
KENTUCKY															
St. Elizabeth Hospital	Covington	Church	316	29	52	19	5,164	Rotating	6	12	July	No	Req	20	$25
Good Samaritan Hospital	Lexington	Church	215	5	45	50	6,953	Rotating	5	12	July	No	Req	27	$25
St. Joseph Hospital	Lexington	Church	219	2	23	75	6,707	Rotating	5	12	July	No	Req	32	$25
Kentucky Baptist Hospital	Louisville	Church	150	9	41	50	4,180	Rotating	4	12	July	(27)	None	22	$25
Louisville City Hospital [1]	Louisville	City	586	90	10		11,196	Rotating	18	12	July	(28)	Req	23	$9.25
Norton Memorial Infirmary	Louisville	NPAssn	150	10	61	29	2,956	Rotating	5	12	July	(27)	Req	19	$20
St. Anthony's Hospital	Louisville	Church	163	22	53	25	3,198	Mixed	2	12	July	No	None	21	$35
St. Joseph Infirmary	Louisville	Church	350	15	23	62	6,390	Rotating	5	12	July	No	None	20	$25
SS. Mary and Elizabeth Hospital	Louisville	Church	155	15	65	20	3,928	Mixed	4	12	July	No	None	16	$40
LOUISIANA															
Charity Hospital [1]	New Orleans	State	1,737	100			21,210	Rotating	90	12	July	No	Req	55	$10
Flint Goodridge Hospital of Dillard University (col.)	New Orleans	NPAssn	100	43	20	37	2,118	Rotating	4	12	July	No	Req	15	$10
Hotel Dieu Sisters Hospital	New Orleans	Church	257	5	21	74	9,434	Rotating	10	12	July	No	None	26	$20(e)
Mercy Hospital-Soniat Memorial	New Orleans	Church	143	7	6	87	3,025	Rotating	4	12	July	No	Req	24	$25
Southern Baptist Hospital	New Orleans	Church	222	11	32	57	9,737	Rotating	11	12	July	No	None	35	$15(e)
Touro Infirmary [1]	New Orleans	NPAssn	440	35	40	25	10,885	Rotating	18	12	July	No	Req	42	$10
U. S. Marine Hospital	New Orleans	USPHS	572	100			4,800	Rotating	12	12	July	(29)	Op	38	(b)
Highland Sanitarium	Shreveport	Corp	110			100	3,521	Mixed	2	12	July	No	None	23	$50
North Louisiana Sanitarium	Shreveport	Corp	110	13		87	2,808	Mixed	2	12	July	No	Req	20	$50
T. E. Schumpert Memorial Sanitarium	Shreveport	Church	142	25	25	50	3,356	Rotating	2	12	July	No	None	28	$50
Shreveport Charity Hospital [1]	Shreveport	State	840	100			23,304	Rotating	25	12	July	No	None	29	$10
Tri-State Hospital	Shreveport	Corp	110	2	8	90	3,892	Rotating	3	12	July	No	None	26	$50
MAINE															
Eastern Maine General Hospital	Bangor	NPAssn	173	20	21	59	4,150	Rotating	4	12	July	No	Req	27	$25
Central Maine General Hospital [1]	Lewiston	NPAssn	214	20	30	50	3,737	Rotating	4	12	July	No	Op	38	No
St. Mary's General Hospital	Lewiston	Church	162	42	13	45	3,112	Mixed	2	12	July	No	Req	25	$20
Maine General Hospital	Portland	NPAssn	291	43	31	26	5,675	Mixed	9	18	June & Dec.	No	Req	25	No
MARYLAND															
Baltimore City Hospitals [1]	Baltimore	City	1,260	99	1		7,657	Rotat&Str	44	12	July	No	Req	39	No
Bon Secours Hospital	Baltimore	Church	143	25	12	63	2,974	Rotating	3	12	July	(30)	Req	35	$25
Church Home and Infirmary	Baltimore	Church	186	25	57	18	2,872	Rotat&Str	7	12	July	No	Req	44	$15
Franklin Square Hospital	Baltimore	NPAssn	204	60	22	18	2,636	Rotating	6	12	July	No	None	23	$12.50(n)
Hospital for Women [1]	Baltimore	NPAssn	128	19	49	32	2,195	Rotating	5	12	July	(31)	Req	31	No
Johns Hopkins Hospital [1]	Baltimore	NPAssn	925	43	25	32	16,336	Straight	66	12	July & Sept.	No	Req	64	No
Maryland General Hospital	Baltimore	Church	261	35	16	49	4,541	Rotating	9	12	July	No	Req	17	$10
Mercy Hospital	Baltimore	Church	280	60	13	27	8,178	Rotating	10	12	July	No	Req	25	No
Provident Hosp. and Free Disp. (col.)	Baltimore	NPAssn	138	73	3	24	1,843	Rotating	8	12	July & Oct.	No	Req	16	$10
St. Agnes Hospital	Baltimore	Church	216	32	37	31	3,830	Rotating	5	12	July	(30)	Req	17	No
St. Joseph's Hospital	Baltimore	Church	290	28	11	61	5,722	Rotating	6	12	July	No	Req	22	$10
Sinai Hospital [1]	Baltimore	NPAssn	283	37	11	52	5,757	Str&Mix	20	12	July	No	Req	34	No
South Baltimore General Hospital	Baltimore	NPAssn	125	46	31	23	2,914	Rotating	6	12	July	No	Req	20	$20
Union Memorial Hospital	Baltimore	NPAssn	345	16	48	36	6,341	Rotating	16	12	July	No	Req	39	No
U. S. Marine Hospital	Baltimore	USPHS	440	100			3,748	Rotating	12	12	July	(32)	Req	80	(b)
University Hospital [1]	Baltimore	State	450	47	22	31	9,046	Rotating	24	24	July	No	Req	44	No
West Baltimore General Hospital	Baltimore	Corp	200	36		64	3,440	Rotating	6	12	July	(33)	Req	25	$15

Numerical and other references will be found on page 831.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
MASSACHUSETTS															
Beverly Hospital	Beverly	NPAssn	261	2	58	40	3,939	Mixed	3	12	July-Sept.	No	Req	64	No
Beth Israel Hospital	Boston	NPAssn	220	39	10	51	6,133	Straight	8	15½&21	(1-h)	No	Req	51	No
Boston City Hospital [1]	Boston	City	2,614	94	5	1	41,492	Straight	95	12-24	Varies	No	Req	33	No
Carney Hospital	Boston	Church	210	7	85	8	4,035	Straight	12	12&20	(1-i)	No	Req	21	No
Faulkner Hospital	Boston	NPAssn	186	15	63	22	3,915	Rotating	3	12	June & Oct.	No	Req	47	No
Long Island Hospital	Boston	City	616	98		2	2,169	Rotating	12	12	(1-j)	No	Req	58	$25
Massachusetts General Hospital [1]	Boston	NPAssn	424	44	35	21	7,784	Straight	41	12-25	(1-c)	No	Req	52	No
Massachusetts Memorial Hospitals [1]	Boston	NPAssn	437	31	39	30	7,544	Rotat&Str	14	16&24	Varies	No	Req	55	No
New England Hospital for Women and Children,[2]	Roxbury														
	Boston	NPAssn	260	3	2	95	5,279	Rotating	8	12	July & Oct.	No	Req	34	No
Peter Bent Brigham Hospital	Boston	NPAssn	247	46		54	4,714	Straight	21	12-29	(1-k)	(34)	Req	57	No
St. Elizabeth's Hospital, Brighton	Boston	Church	300	20	30	50	4,812	Mixed	7	21	(1-c)	No	Req	20	No
Brockton Hospital	Brockton	NPAssn	154	15	77	8	2,746	Rotating	4	12	June-Aug.	No	Req	23	$10(h)
Cambridge City Hospital	Cambridge	City	234	65	5	30	5,723	Rotating	14	22	(1-d)	No	Req	36	No
Cambridge Hospital	Cambridge	NPAssn	267	11	25	64	4,254	Rotating	4	18	(1-e)	(35)	Req	35	No
U. S. Naval Hospital	Chelsea	Navy	335	100			2,421	Rotating	..	12-16	July	...	None	54	(b)
Union Hospital	Fall River	NPAssn	202	5	43	52	3,187	Rotating	3	12	July	No	Req	16	$25
Burbank Hospital	Fitchburg	Corp	220	45		55	4,115	Rotating	4	12	July & Oct.	No	Req	19	$25
Providence Hospital	Holyoke	Church	200	7	58	35	5,599	Rotating	3	12	June	No	None	20	$25
Lawrence General Hospital	Lawrence	NPAssn	150	22	2	76	3,032	Rotating	2	12	June	No	Req	24	$10
Lowell General Hospital	Lowell	NPAssn	180	9	68	23	2,926	Rotating	2	12	July	No	Req	27	$25
St. John's Hospital	Lowell	Church	187	10	59	31	3,352	Rotating	4	12	July & Oct.	No	Req	21	(e)
St. Joseph's Hospital	Lowell	Church	122	1	65	34	4,066	Rotating	3	12	Apr. & July	No	Req	23	$10
Lynn Hospital	Lynn	NPAssn	218	16	28	56	4,916	Rotating	6	18	Jan. & July	No	Req	26	$300 yr.
St. Luke's Hospital	New Bedford	NPAssn	339	11	43	46	6,861	Rotating	6	12	July	No	Req	30	No
Newton Hospital	Newton	NPAssn	294	25	46	29	5,186	Rotating	6	12	June	No	Req	31	No
House of Mercy Hospital	Pittsfield	NPAssn	233	6	84	10	3,378	Rotating	3	12	July	No	Req	17	$40
St. Luke's Hospital	Pittsfield	Church	189	4	13	83	3,926	Rotating	2	12	June	No	Req	18	$25
Quincy City Hospital	Quincy	City	290	10	20	70	6,281	Rotating	6	12	Jan. & July	(36)	Op	44	(i)
Salem Hospital	Salem	NPAssn	185	23	45	32	4,241	Rotating	4	12	July & Aug.	No	Req	24	$25
Mercy Hospital	Springfield	Church	380	4	16	80	6,809	Rotating	6	12	July & Aug.	No	Req	20	$25
Springfield Hospital	Springfield	NPAssn	265	7	78	15	6,009	Rotating	9	18	Jan. & July	(37)	Req	20	No
Wesson Memorial Hospital	Springfield	NPAssn	120	3	22	75	2,483	Rotating	5	18	Jan. & July	(37)	Req	17	$25
Waltham Hospital	Waltham	NPAssn	216	19	57	24	3,088	Rotating	4	12	July	No	Req	24	$15(l)
Memorial Hospital	Worcester	NPAssn	215	14	4	82	6,381	Rotating	9	18	(1-d)	No	Req	47	No
St. Vincent Hospital	Worcester	Church	250	4	4	92	7,066	Rotating	5	15½	(1-e)	No	Req	22	$20
Worcester City Hospital	Worcester	City	540	56	19	25	9,507	Rotating	18	24	(1-m)	No	Req	45	No
Worcester Hahnemann Hospital	Worcester	NPAssn	140	3	71	26	2,316	Rotating	3	12	July	No	None	48	$35
MICHIGAN															
St. Joseph's Mercy Hospital [1]	Ann Arbor	Church	155	17	42	41	3,336	Rotating	3	12	July	(38)	Req	38	$25
University Hospital [1]	Ann Arbor	State	1,302	81		19	21,582	Rotat&Mix	34	12	July	No	Req	57	No
Leila Y. Post Montgomery Hospital	Battle Creek	Church	157	19	13	68	4,021	Rotating	3	12	July	No	Req	42	$25
Mercy Hospital	Bay City	Church	160	9	18	73	5,314	Rotating	3	12	July	No	None	19	$25
City of Detroit Receiving Hospital [1]	Detroit	City	670	100			21,365	Rotating	27	12	July	(39)	Req	31	$25
Evangelical Deaconess Hospital	Detroit	Church	205	1	17	82	4,230	Rotating	5	12	July	(40)	Req	29	$15
Grace Hospital [1]	Detroit	NPAssn	606	27	40	33	15,444	Rotating	26	12	July & Sept.	(39)	Req	28	$25
Harper Hospital	Detroit	NPAssn	710	12	29	59	18,803	Rotating	38	12	July	(40)	Req	24	No
Henry Ford Hospital	Detroit	NPAssn	608	35		65	10,045	Rotating	25	12	Sept.	No	Op	45	$125(a)
Providence Hospital	Detroit	Church	409	10	77	13	12,961	Rotating	17	12	July	(41)	None	18	$20
St. Joseph's Mercy Hospital	Detroit	Church	242	86	13	1	5,498	Rotating	6	12	July	No	Req	24	$25
St. Mary's Hospital	Detroit	Church	364	27	43	30	7,384	Rotating	12	12	July	No	Req	26	$20
Eloise Hospital—Dr. William J. Seymour Hospital [1]	Eloise	County	1,450	98	1	1	7,452	Mixed	25	12	July	(39)	Req	37	$25
Hurley Hospital [1]	Flint	City	467			*	10,300	Rotating	14	12	July	No	None	33	$20(e)
Blodgett Memorial Hospital [1]	Grand Rapids	NPAssn	150	20	60	20	3,410	Rotating	6	12	(1-n)	(42)	Req	37	$20
Butterworth Hospital	Grand Rapids	NPAssn	272	15	40	45	5,867	Rotating	7	12	July	(124)	None	30	$20
St. Mary's Hospital	Grand Rapids	Church	253	24	5	71	7,073	Rotating	6	12	July	No	Req	26	$10-30
Highland Park General Hospital	Highland Park	City	190	10		90*	4,679	Rotating	6	12	July	No	Req	22	$15
W. A. Foote Memorial Hospital	Jackson	City	172	2	35	63	4,138	Rotating	4	12	July	(43)	Req	52	$25
Mercy Hospital	Jackson	Church	140	3	30	67	3,181	Rotating	2	12	July	(44)	None	28	$40
Edward W. Sparrow Hospital [1]	Lansing	NPAssn	155	1	74	25	4,986	Rotating	2	12	July	No	None	31	$50
St. Lawrence Hospital	Lansing	Church	178	2	24	74	6,499	Rotating	3	12	July	(45)	None	47	$50
Hackley Hospital [1]	Muskegon	NPAssn	125	10	70	20	2,705	Rotating	3	12	July	No	None	36	$25
Mercy Hospital	Muskegon	Church	125	25	33	42	4,795	Rotating	2	12	July	No	None	27	$35
St. Joseph Mercy Hospital	Pontiac	Church	200	1	19	80	3,896	Rotating	4	12	July	No	Req	32	$25
Saginaw General Hospital	Saginaw	NPAssn	152	5	18	77	3,566	Rotating	4	12	July	No	Req	27	$45
St. Mary's Hospital	Saginaw	Church	176	26	12	62	4,053	Rotating	3	12	July	No	Req	21	$45
MINNESOTA															
St. Luke's Hospital	Duluth	NPAssn	270	20	45	35	6,089	Rotating	8	12	July	(46)	Req	75	$12.50
St. Mary's Hospital	Duluth	Church	290	20	45	35	5,343	Rotating	8	12	July	(47)	Req	72	$12.50
Asbury Hospital [1]	Minneapolis	Church	140	10		90	3,628	Rotating	3	12	(1-f)	No	None	30	$25
Fairview Hospital	Minneapolis	Church	225	10	30	60	4,258	Rotating	4	12	Jan. & July	(48)	Req	38	$25
Lutheran Deaconess Home and Hosp.	Minneapolis	Church	150	2	12	86	4,009	Rotating	4	12	Jan. & July	No	None	27	$25
Minneapolis General Hospital [1]	Minneapolis	City	681	85	3	12	10,021	Rotating	30	18	Jan. & July	No	Req	50	No
Northwestern Hospital	Minneapolis	NPAssn	185	10	15	75	7,341	Rotating	4	12	July	No	Op	42	$25(h)
St. Barnabas Hospital	Minneapolis	NPAssn	175	1	1	98	5,260	Mixed	3	12	July	No	None	39	$25
St. Mary's Hospital [1]	Minneapolis	Church	250	8	28	64	6,645	Rotating	6	12	July & Oct.	(49)	Op	35	$15(l)
Swedish Hospital	Minneapolis	NPAssn	267	3	45	52	6,156	Rotating	5	12	(1-f)	No	Req	25	$25
University Hospitals [1]	Minneapolis	State	505	12	61	27	9,203	Rotat&Str	24	12&24	July	(50)	Req	70	No
Ancker Hospital	St. Paul	CyCo	900	98	1	1	9,761	Rotating	32	12	July	No	Req	67	No
Bethesda Hospital [1]	St. Paul	Church	145	1	3	96	4,721	Rotating	4	12	July	(48)	None	36	$25
Charles T. Miller Hospital	St. Paul	NPAssn	250	23	36	41	6,103	Rotating	7	12	July	(51)	Req	50	No
Northern Pacific Beneficial Association Hospital	St. Paul	NPAssn	150			100	2,456	Mixed	2	12	July	No	Req	31	$25
St. Joseph's Hospital	St. Paul	Church	282	14	20	66	7,801	Rotating	7	12	July	(48)	None	26	$25
MISSOURI															
St. Louis County Hospital	Clayton	County	210	98	1	1	4,231	Rotating	6	12	July	No	Req	52	$15(l)
Kansas City General Hospital	Kansas City	City	475	100			10,842	Rotating	24	12	July	No	Req	87	$20
Kansas City General Hospital No. 2, (col.)	Kansas City	City	274	100			3,466	Rotating	12	12	July	No	Req	49	$17.50
Menorah Hospital	Kansas City	NPAssn	150	6	32	62	3,367	Rotating	5	12	July	No	Req	37	$25
Research Hospital	Kansas City	NPAssn	225	3		97	5,795	Rotating	6	12	July	No	None	19	$25
St. Joseph Hospital	Kansas City	Church	256	15	20	65	5,106	Rotating	6	12	July	No	None	73	$25
St. Luke's Hospital	Kansas City	Church	223	10	25	65	4,733	Rotating	6	12	July	No	None	78	$25
St. Mary's Hospital	Kansas City	Church	175	15	18	67	4,317	Rotating	5	12	July	No	None	67	$25
Trinity Lutheran Hospital	Kansas City	Church	136	1	10	89	2,828	Rotating	4	12	July	No	None	41	$25(n)
Missouri Methodist Hospital [1]	St. Joseph	Church	170	3	27	70	3,596	Rotating	5	12	Jan. & July	No	None	26	$50
St. Joseph's Hospital	St. Joseph	Church	180	5	44	51	3,296	Rotating	4	12	July	No	None	55	$30
Barnes Hospital	St. Louis	Church	350	16	7	77*	10,290	Straight	18	12&18	Jan. & July	(52)	Req	57	No

Numerical and other references will be found on page 831.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
MISSOURI—Continued															
Christian Hospital	St. Louis	NPAssn	115	5	5	90	1,902	Mixed	2	12	July	No	None	28	$20(f)
De Paul Hospital	St. Louis	Church	285	22	30	48	6,934	Rotating	8	12	July	No	Req	23	$25
Evangelical Deaconess Home and Hosp.[1]	St. Louis	Church	195	2	5	93	5,651	Rotating	8	12	July	No	None	25	$25(h)
Homer G. Phillips Hosp. for Colored	St. Louis	City	735	100			5,869	Rotating	30	12	July	No	Req	23	$10(g)
Jewish Hospital	St. Louis	NPAssn	283	25	51	24	6,019	Rotating	11	12	July	(53)	Req	31	$15
Lutheran Hospital	St. Louis	Church	180	4	22	74	4,270	Rotating	3	12	July	No	None	34	$25
Missouri Baptist Hospital	St. Louis	Church	500	10	10	80	5,352	Rotating	8	12	July	No	None	21	$25
St. Anthony's Hospital	St. Louis	Church	225	13	14	73	4,140	Rotating	6	12	July	(54)	Op	19	$25
St. John's Hospital	St. Louis	Church	318	16	4	80	5,879	Rotating	9	12	July	No	Req	21	$20
St. Louis City Hospital	St. Louis	City	734	100			18,481	Rotating	60	12	July	(55)	Req	44	$10(g)
St. Luke's Hospital	St. Louis	Church	207	16	28	56	5,051	Rotating	9	12	July	(56)	Req	49	$20
St. Mary's Group of Hospitals	St. Louis	Church	706	42	36	22	11,599	Rotating	26	12	July	No	Req	52	No
St. Mary's Infirmary (col.)	St. Louis	Church	150	18	62	20	1,597	Rotating	3	12	July	No	None	41	$50
MONTANA															
Murray Hospital	Butte	Corp	153			100	2,666	Mixed	2	12	Jan. & July	No	Req	31	$50
St. James Hospital	Butte	Church	201	15	35	50	3,014	Rotating	2	12	July	No	Req	28	$50
NEBRASKA															
Bryan Memorial Hospital[1]	Lincoln	Church	114		8	92	2,410	Mixed	2	12	July	No	None	42	$25
Lincoln General Hospital[1]	Lincoln	City	170	10	15	75	3,242	Mixed	2	12	July	No	None	39	$25
St. Elizabeth's Hospital	Lincoln	Church	200	17	61	22	4,455	Mixed	2	12	July	No	None	15	$35
Bishop Clarkson Memorial Hospital	Omaha	Church	150	5	60	35	3,179	Rotating	3	12	June	No	None	37	$25
Creighton Memorial St. Joseph's Hosp.	Omaha	Church	405	17	74	9	7,587	Rotating	11	12	July	No	None	28	$20(e)
Immanuel Deaconess Institute	Omaha	Church	142	6	34	60	3,877	Rotating	4	12	June	No	None	32	$20(i)
Nebraska Methodist Episcopal Hosp.[1]	Omaha	Church	200	8	23	69	4,211	Rotating	5	12	July	No	None	43	$25
St. Catherine's Hospital	Omaha	Church	165	11	78	11	2,962	Rotating	4	12	July	No	None	26	$25
University of Nebraska Hospital	Omaha	State	230	100			3,558	Rotating	12	12	July	No	Req	87	$25
NEW HAMPSHIRE															
Margaret Pillsbury General Hospital	Concord	NPAssn	130	35	6	59	2,101	Mixed	2	12	June	No	Req	43	$10
Mary Hitchcock Memorial Hospital	Hanover	NPAssn	200	17	46	37	3,234	Rotating	6	18&24	(1-c)	No	Req	81	$100 yr.
NEW JERSEY															
Atlantic City Hospital	Atlantic City	NPAssn	276	45	22	33	6,571	Rotating	8	12	July	No	Req	46	$25
Bayonne Hospital and Dispensary	Bayonne	NPAssn	225	70	5	25	4,153	Rotating	6	18	(1-c)	No	Req	18	$25
Cooper Hospital	Camden	NPAssn	375	44	24	32	8,305	Rotating	11	12	July	No	Req	34	$10
West Jersey Homeopathic Hospital	Camden	NPAssn	298	30	23	47	5,994	Rotating	7	12	June	No	Req	26	$10
Homeopathic Hospital of Essex County	East Orange	NPAssn	125	15	55	30	3,310	Rotating	3	12	July	No	Req	26	$25
Alexian Bros. Hosp. (male patients only)	Elizabeth	Church	165	36	7	57	2,101	Rotating	3	12	July	(58)	Req	23	$50
Elizabeth General Hosp. and Dispensary	Elizabeth	NPAssn	259	30	34	36	6,253	Rotating	8	24	July	No	Req	31	$15
St. Elizabeth Hospital	Elizabeth	Church	250	46		54	4,761	Rotating	6	12	July	No	Req	22	$15
Englewood Hospital[1]	Englewood	NPAssn	238	41	45	14	5,252	Rotating	8	12&18	Jan. & July	No	Req	24	$20
Hackensack Hospital	Hackensack	NPAssn	280	60	23	17	7,001	Rotating	9	24	July	(59)	Req	19	$25
St. Mary Hospital	Hoboken	Church	460	60	15	25	5,782	Rotating	9	12	July	No	Req	15	$25
Christ Hospital[1]	Jersey City	Church	206	19	11	70	4,659	Rotating	9	18	Jan. & July	No	Req	32	$25
Jersey City Hospital[1]	Jersey City	City	900	90	7	3	18,221	Rotating	90	12-24	(1-a)	(60)	Req	18	No
St. Francis' Hospital	Jersey City	Church	252	26	32	42	3,862	Rotating	8	24	July	(61)	Req	15	No
Monmouth Memorial Hospital	Long Branch	NPAssn	211	60	15	25	5,049	Rotating	9	18	Jan. & July	(62)	Op	21	$15
Mountainside Hospital	Montclair	NPAssn	380	8	44	48	6,166	Rotating	12	24	July	No	Req	43	$25
All Souls Hospital	Morristown	Church	134	26	66	8	2,048	Rotating	3	12	July	No	Req	45	$25
Morristown Memorial Hospital[1]	Morristown	NPAssn	155	45	17	38	2,296	Rotating	5	12	July-Oct.	No	Req	43	$40
Burlington County Hospital	Mount Holly	NPAssn	141	36	28	36	2,827	Rotating	4	12	July	(63)	Req	49	$25
Fitkin Memorial Hospital[1]	Neptune	NPAssn	194	77		23	4,526	Rotating	7	12	Jan. & July	No	Req	21	$25
Hospital of St. Barnabas and for Women and Children	Newark	Church	250	10	11	79	2,985	Rotating	5	12	July	No	Req	22	$45
Newark Beth Israel Hospital	Newark	NPAssn	445	6	30	64	11,705	Rotating	18	18	Jan. & July	No	Req	34	$15
Newark City Hospital	Newark	City	740	100			16,218	Rotating	24	24	(1-c)	No	None	29	$15-20
Newark Memorial Hospital	Newark	NPAssn	161	8	55	37	2,952	Rotating	4	12	July	No	Req	28	$25
St. James Hospital[1]	Newark	Church	125	14	24	62	2,851	Rotating	3	12	July	No	Req	21	$30
St. Michael's Hospital	Newark	Church	317	4	18	78	5,778	Rotating	6	15	July & Sept.	(61)	Req	20	$30
St. Peter's General Hospital	New Brunswick	Church	206	41	13	46	4,355	Rotating	5	12	July & Sept.	No	Req	21	$120 yr.
Orange Memorial Hospital	Orange	NPAssn	400	21	20	59	7,941	Rotating	8	12	July	No	Req	28	$25
St. Mary's Hospital	Orange	Church	150	24	34	42	2,897	Rotating	3	12	July	No	Req	20	$25
Passaic General Hospital	Passaic	NPAssn	200	55	15	30	4,253	Rotating	4	12	July	No	Req	18	$25
St. Mary's Hospital	Passaic	Church	212	20	3	77	5,108	Rotating	4	12	July	No	Req	40	$25
Nathan and Miriam Barnert Memorial Hospital	Paterson	NPAssn	129	29	25	46	3,006	Rotating	5	12	July & Sept.	No	Req	34	$15-20
Paterson General Hospital	Paterson	NPAssn	320	37	11	52	6,749	Rotating	8	24	July	No	Op	16	$12.50(n)
St. Joseph's Hospital	Paterson	Church	457	40	20	40	6,960	Rotating	10	24	July	No	Req	21	$12.50-25
Muhlenberg Hospital	Plainfield	NPAssn	273	33	17	50	6,170	Rotating	6	12	July	No	Req	27	$25
Holy Name Hospital	Teaneck	Church	225	40	10	50	3,807	Rotating	6	12	July	No	Req	31	$40
Mercer Hospital	Trenton	NPAssn	250	47		53	4,753	Rotating	6	12	July	No	Req	21	$25
St. Francis Hospital	Trenton	Church	317	42	39	19	5,730	Rotating	8	12	July	No	Req	20	$25
William McKinley Memorial Hospital	Trenton	NPAssn	146	34	10	56	3,115	Rotating	4	12	July	No	Req	28	$25
North Hudson Hospital[1]	Weehawken	NPAssn	191	16	55	29	3,671	Rotating	8	12	Jan. & July	(61)	Req	22	$25
NEW YORK															
Albany Hospital[1]	Albany	NPAssn	640	2	84	14	11,851	Rotating	24	12&24	July	No	Req	74	(o)
Memorial Hospital	Albany	NPAssn	136	1	26	73	2,584	Rotating	5	12	July & Sept.	No	Req	40	$25
St. Peter's Hospital	Albany	Church	155	28	7	65	3,383	Rotating	5	12	July	(64)	Req	28	$40
Binghamton City Hospital	Binghamton	City	500	55		45	8,395	Rotating	10	24	July	No	Req	24	(p)
Beth-El Hospital	Brooklyn	NPAssn	240	32	13	55	6,368	Rotating	21	12&24	Jan. & July	No	Op	36	No
Beth Moses Hospital	Brooklyn	NPAssn	224	39	3	58	5,012	Rotating	16	24	Jan. & July	No	Req	30	$15
Brooklyn Hospital	Brooklyn	NPAssn	410	45	15	40	8,206	Rotating	16	24	July	No	Op	37	No
Bushwick Hospital	Brooklyn	NPAssn	133	1	22	77	3,101	Rotating	9	24	July	No	Req	17	No
Caledonian Hospital[1]	Brooklyn	NPAssn	130	1	56	43	2,134	Rotating	3	12	July	No	Req	22	$25
Coney Island Hospital[1]	Brooklyn	City	409	100			9,266	Rotating	22	24	July	No	Req	36	$15
Cumberland Hospital	Brooklyn	City	318	100			8,725	Rotating	24	24	July	No	Op	52	$15
Greenpoint Hospital	Brooklyn	City	320	100			7,909	Rotating	16	24	July	No	Req	32	$15
Israel Zion Hospital	Brooklyn	NPAssn	450	23	4	73	9,663	Rotat&Str	32	12&24	July	(65)	Req	36	No
Jewish Hospital[1]	Brooklyn	NPAssn	660	24	24	52	15,181	Rotating	24	18	Jan. & July	(65)	Req	31	$15
Kings County Hospital	Brooklyn	City	2,825	100			57,534	Rotat&Str	103	12&24	July	No	Req	63	No
Long Island College Hospital[1]	Brooklyn	NPAssn	473	7	36	57	9,145	Rotat&Str	22	12	July	(66)	Req	29	No
Methodist Episcopal Hospital	Brooklyn	Church	480	10	2	88	9,821	Rotating	14	24	July	No	Req		
Norwegian Lutheran Deaconesses' Home and Hospital[1]	Brooklyn	Church	201	17	31	52	4,201	Rotating	10	12	July	No	Req	35	No
St. Catherine's Hospital	Brooklyn	Church	313	8	31	61	5,901	Rotating	16	24	July	No	Req	21	No
St. John's Hospital	Brooklyn	Church	334	51	6	43	4,725	Rotating	12	36	July	No	Req	51	No
St. Mary's Hospital	Brooklyn	Church	306	25	23	52	4,847	Rotating	16	24	July	No	Req	19	No
St. Peter's Hospital	Brooklyn	Church	226	28	49	23	3,203	Rotating	6	12	July	No	None	19	No

Numerical and other references will be found on page 831.

Name of Hospital	Location	Control	Capacity	Classification of Patients (Percentage)			Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free	Part Pay	Full Pay									
NEW YORK—Continued															
Trinity Hospital	Brooklyn	NPAssn	125	68	29	3	2,828	Rotating	12	24	July	No	Req	38	No
U. S. Naval Hospital	Brooklyn	Navy	484	100			2,353	Rotating	..	12	July	No	None	38	(b)
Wyckoff Heights Hospital	Brooklyn	NPAssn	200	28	34	38	5,315	Rotating	12	18	Jan. & July	No	Req	18	No
Buffalo City Hospital [1]	Buffalo	City	1,063	65	30	5	10,532	Rotating	20	12	July	No	Req	34	$50(a)
Buffalo General Hospital	Buffalo	NPAssn	465	3	33	64	10,760	Rotating	14	12	July	(67)	Req	40	No
Buffalo Hospital of the Sisters of Charity	Buffalo	Church	219	2	3	95	3,952	Rotating	12	12	July	(68)	None	22	$25
Deaconess Hospital	Buffalo	NPAssn	225	1	40	59	6,001	Rotating	6	12	July	No	None	25	$25
Mercy Hospital	Buffalo	Church	198	26		74	3,973	Rotating	6	12	July	No	Req	24	$30
Millard Fillmore Hospital	Buffalo	NPAssn	329	17	50	33	6,498	Rotating	7	12	July	No	Req	40	$15
Mary Imogene Bassett Hospital [1]	Cooperstown	NPAssn	100	10	90		2,001	Mixed	5	12	July	No	None	59	$50
Arnot-Ogden Memorial Hospital	Elmira	NPAssn	213	17	50	33	5,263	Mixed	2	12	July	No	Req	23	$20(e)
St. Joseph's Hospital	Elmira	Church	227	8		92	3,640	Rotating	5	12	July	No	None	20	$25
Ideal Hospital	Endicott	City	146	2		98*	3,221	Rotating	3	12	July	No	None	37	$10(g)
Flushing Hospital and Dispensary	Flushing	NPAssn	269	2	27	71	6,402	Rotating	10	24	July	No	Req	26	$25
Meadowbrook Hospital [1]	Hempstead	County	268	89	5	6	5,089	Rotating	6	12	July	No	Req	26	$25
Jamaica Hospital	Jamaica	NPAssn	197	5	32	63	4,385	Rotating	8	18	Jan. & July	No	None	52	$25
Mary Immaculate Hospital	Jamaica	Church	320	7	53	40	8,197	Rotating	16	24	July	No	Req	36	$15
Queens General Hospital [1]	Jamaica	City	696	100			13,426	Rotating	18	24	July	No	Req	36	No
Charles S. Wilson Memorial Hospital	Johnson City	NPAssn	350	2		98	5,663	Rotating	9	24	July	No	Req	63	$15
Kingston Hospital [1]	Kingston	NPAssn	133	1	74	25	3,082	Rotating	3	12	July	(69)	Req	43	$50
Our Lady of Victory Hospital	Lackawanna	Church	160	9	24	67	2,464	Rotating	3	12	July	(70)	None	39	$25(r)
St. John's Long Island City Hospital	Long Island City	Church	300	6	83	11	6,893	Rotating	16	24	July	No	Req	17	$50
Nassau Hospital	Mineola	NPAssn	200	14	70	16	4,906	Rotating	4	12	July	No	Req	56	No
Mount Vernon Hospital	Mount Vernon	NPAssn	181	17	20	63	4,205	Rotating	6	24	July	No	None	19	$50
New Rochelle Hospital	New Rochelle	NPAssn	147	6	21	73	4,879	Rotating	7	12	July	No	Req	19	(q)
Beekman Street Hospital [1]	New York	NPAssn	100	13	79	8	2,115	Mixed	8	24	Jan. & July	No	Req	38	$25
Bellevue Hospital [1]	New York	City	2,431	100			59,528	Mix&Str	92	12-24	Jan. & July	No	Req	24	$30
Beth David Hospital	New York	NPAssn	200	23	28	49	2,151	Rotating	10	24	July	No	Req	21	$15
Beth Israel Hospital [1]	New York	NPAssn	443	45	8	47	7,790	Rotat&Str	28	12-36	(1-c)	No	Req	38	No
Bronx Hospital	New York	NPAssn	362	24	25	51	11,529	Rotating	16	24	(1-o)	No	Op	24	No
Columbus Hospital	New York	Church	300	13	65	22	5,126	Rotating	10	18	Jan. & July	No	Req	36	(h)
Flower Hospital-Fifth Avenue Hospital	New York	NPAssn	364	5	48	47	8,300	Rotating	24	24	July	No	Req	15	No
Fordham Hospital	New York	City	609	100			15,157	Rotat&Mix	28	24	(1-p)	No	Op	25	No
French Hospital	New York	NPAssn	300	30		70	4,290	Straight	14	12&24	(1-c)	No	Op	39	$15
Gouverneur Hospital	New York	City	212	100			3,765	Rotating	16	24	(1-c)	No	Op	31	(r)
Harlem Hospital [1]	New York	City	642	100			15,890	Rotating	48	24	Jan. & July	No	Op	29	$15
Hospital for Joint Diseases	New York	NPAssn	355	52	14	34	5,923	Rotating	12	24	Jan. & July	No	Req	23	$15
Jewish Memorial Hospital	New York	NPAssn	209	11	54	35	.....	Rotating	13	24	Jan. & July	(71)	Req	36	$15
Knickerbocker Hospital	New York	NPAssn	204	47	43	10	4,431	Rotat&Mix	12	12&24	Jan. & July	No	Req	25	No
Lebanon Hospital	New York	NPAssn	154	52	46	2	2,660	Rotating	8	24	Apr. & Oct.	No	Req	36	No
Lenox Hill Hospital [1]	New York	NPAssn	603	24	43	33	11,347	Rotating	24	24	Jan. & July	No	Req	25	No
Lincoln Hospital	New York	City	368	97	3		10,593	Rotating	43	12&24	Jan. & July	No	Req	42	(s)
Manhattan General Hospital [1]	New York	Corp	228	4	10	86	4,716	Rotating	8	18	Jan. & July	No	Req	34	$15
Metropolitan Hospital [1]	New York	City	1,425	100			10,847	Rotating	40	24	July	No	None	22	(dd)
Misericordia Hospital	New York	Church	313	20		80	5,511	Rotating	8	24	Jan. & July	No	Req	18	$15
Montefiore Hosp. for Chronic Diseases [1]	New York	NPAssn	712	88	5	7	1,770	Mix&Str	10	12	Jan. & July	No	Req	36	$15
Morrisania City Hospital [1]	New York	City	539	100			13,711	Rotating	32	24	Jan. & July	No	Req	78	$25
Mount Sinai Hospital [1]	New York	NPAssn	857	55	30	15	15,745	Mix&Str	32	12&30	(1-p)	No	Op	52	(r)
New York City Hospital	New York	City	1,030	100			7,839	Rotating	32	24	July	No	Req	39	$15
New York Hospital [1]	New York	NPAssn	1,053	23	77		18,367	Straight	35	12	July	(72)	Req	55	No
New York Infirmary for Women and Children [2]	New York	NPAssn	162	44	12	44	3,715	Rotating	6	12	June & Sept.	No	Req	67	$10
New York Polyclinic Medical School and Hospital	New York	NPAssn	366	15	33	52	8,981	Rotating	8	24	(1-c)	No	Req	23	No
New York Post-Graduate Medical School and Hospital	New York	NPAssn	410	13	3	84	9,554	Mix&Str	12	12&24	(1-c)	No	Req	39	No
Presbyterian and Sloane Hospitals [1]	New York	NPAssn	997	30	43	27	19,326	Mix&Str	43	12-25	Varies	No	Req	47	No
Roosevelt Hospital	New York	NPAssn	391	40	38	22	7,499	Mixed	21	12-36	Jan. & July	No	Req	43	No
St. Francis Hospital	New York	Church	380	42	36	22	5,309	Mixed	8	24	Jan. & July	No	None	18	No
St. Luke's Hospital	New York	Church	475	37	39	24	7,983	Mixed	20	24	Jan. & July	No	Req	43	No
St. Vincent's Hospital	New York	Church	465	22	48	30	10,112	Rotating	35	30	Jan. & July	No	Req	36	No
Sydenham Hospital [1]	New York	NPAssn	229	11	40	49	4,766	Rotating	16	24	Jan. & July	No	Req	26	(r)
United Hospital	Port Chester	NPAssn	202	2	51	47	4,775	Rotating	4	12	July	No	Req	25	No
Vassar Brothers Hospital	Poughkeepsie	NPAssn	225	19		81	4,223	Rotating	4	12	July	No	Req	24	$40(h)
Genesee Hospital	Rochester	NPAssn	229	14	43	43	5,969	Rotating	9	12&24	July	No	Req	28	$30(e)
Highland Hospital	Rochester	NPAssn	271	5	79	16	4,958	Rotating	8	24	July	No	Req	34	$10-20
Rochester General Hospital	Rochester	NPAssn	375	21	39	40	8,533	Rotating	12	12	July & Sept.	No	Req	21	$25
St. Mary's Hospital	Rochester	Church	225	11	52	37	5,186	Rotating	5	12	July	No	Req	57	$15
Strong Memorial and Rochester Municipal Hospitals [1]	Rochester	NP-Cy	657	63	20	17	13,550	Straight	32	12	July	No	Req	26	$20
Ellis Hospital [1]	Schenectady	NPAssn	285	3	15	82	8,359	Rotating	10	12	July	No	Req	65	No
U. S. Marine Hospital (Staten Island)	Stapleton	USPHS	716	100			6,965	Rotating	23	12	July	No	Req	22	$15
St. Vincent's Hospital	Staten Island	Church	241	1	65	34	5,937	Rotating	8	24	July	(73)	Req	62	(b)
Staten Island Hospital	Staten Island	Corp	268	2	79	19	5,919	Rotating	7	24	July	No	Req	18	No
Crouse-Irving Hospital	Syracuse	NPAssn	240	14	69	17	6,813	Rotating	4	12	July	No	Req	21	No
General Hospital of Syracuse [1]	Syracuse	NPAssn	110	16	57	27	2,736	Rotating	4	12	July	No	None	26	$25
Hospital of the Good Shepherd, Syracuse University	Syracuse	NPAssn	209	2	38	60	5,418	Rotating	9	12&24	July & Aug.	(74)	None	38	No
St. Joseph Hospital	Syracuse	Church	231	36	45	19	7,224	Rotating	6	12	July	(74)	Req	31	No
Syracuse Memorial Hospital	Syracuse	NPAssn	250	43	31	26	5,961	Rotating	7	12&24	July	No	None	20	No
Samaritan Hospital	Troy	NPAssn	181	4	62	34	3,450	Rotating	4	12	July-Sept.	No	Req	21	$25(h)
Troy Hospital [1]	Troy	Church	294	8	36	56	3,721	Rotating	4	12	July	(64)	Req	17	$30
Grasslands Hospital [1]	Valhalla	County	795	86	2	12	5,892	Rotating	24	24	Jan. & July	No	Req	73	(t)
St. Agnes Hospital	White Plains	Church	136	5	43	52	3,074	Rotating	4	12	July	No	Req	28	$25
St. John's Riverside Hospital	Yonkers	NPAssn	200	24		76	4,915	Rotating	5	12	(1-a)	No	Op	34	$50
St. Joseph's Hospital	Yonkers	Church	185	30	12	58	2,873	Rotating	6	18	Jan. & July	No	Req	19	$25
Yonkers General Hospital	Yonkers	NPAssn	178	25	20	55	2,734	Rotating	4	12	Jan. & July	No	Op	15	(u)
NORTH CAROLINA															
Duke Hospital	Durham	NPAssn	450	56	33	11	10,954	Straight	33	12	July & Sept.	No	Req	59	No
Lincoln Hospital (col.)	Durham	NPAssn	108	44	19	37	1,375	Rotating	3	12	July	No	Req	21	$15
Watts Hospital	Durham	NPAssn	225	23	28	49	5,266	Rotating	8	12	July	No	Req	24	$15
Highsmith Hospital	Fayetteville	NPAssn	126	14	39	47	2,948	Rotating	4	12	July	No	Req	29	$25
Rex Hospital [1]	Raleigh	NPAssn	200	13	25	62	4,619	Rotating	5	12	July	No	Req	17	$25
St. Agnes Hospital (col.)	Raleigh	Church	100	54	18	28	1,323	Mixed	2	12	July & Sept.	No	Req	26	(h)
Park View Hospital	Rocky Mount	NPAssn	120	26	13	61	2,955	Rotating	3	12	July	No	Req	15	$25
James Walker Memorial Hospital	Wilmington	NPAssn	185	42	8	50	5,232	Rotating	4	12	July	No	Req	15	$25(k)
City Hospital	Winston-Salem	City	321	39	5	56	4,756	Mixed	8	12	July	No	Req	20	$15(v)
NORTH DAKOTA															
St. John's Hospital	Fargo	Church	165	2	21	77	4,670	Mixed	2	12	July	(75)	None	29	$25
Trinity Hospital	Minot	Church	186	10	45	45	3,030	Rotating	4	12	July	No	None	84	$25

Numerical and other references will be found on page 831.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage			Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free	Part Pay	Full Pay									
OHIO															
City Hospital	Akron	NPAssn	366	30	7	63	9,422	Rotating	12	12	July	(76)	Req	45	$22
Peoples Hospital	Akron	NPAssn	156	20		80	4,071	Rotating	4	12	July	(76)	Req	28	$25
St. Thomas Hospital	Akron	Church	185	20	40	40	4,730	Rotating	4	12	July	No	None	30	$20
Aultman Hospital [1]	Canton	NPAssn	171	19	56	25	3,867	Rotating	4	12	July	(77)	None	27	$50
Mercy Hospital	Canton	Church	230	28		72	6,515	Rotating	4	12	July	No	Req	32	$25
Bethesda Hospital	Cincinnati	Church	239	25	30	45	5,933	Rotating	7	12	July	(78)	Req	16	$25(e)
Christ Hospital	Cincinnati	Church	352	4	41	55	7,520	Rotating	9	12	June	(78)	Req	28	$22.50
Cincinnati General Hospital [1]	Cincinnati	City	925	87	10	3	15,834	Rotating	40	12	July	(79)	Req	52	No
Deaconess Hospital	Cincinnati	Church	175	5	41	54	4,282	Rotating	6	12	July	(80)	Req	19	$25
Good Samaritan Hospital	Cincinnati	Church	550	5	66	29	10,708	Rotating	14	12	June	No	None	19	$15
Jewish Hospital [1]	Cincinnati	NPAssn	262	20	44	36	5,713	Rotating	8	12	July	(81)	None	26	$20
St. Mary's Hospital	Cincinnati	Church	252	60	31	9	4,851	Rotating	6	12	July	No	None	18	$25
City Hospital [1]	Cleveland	City	1,579	97	2	1	14,482	Rotating	36	12	July	No	Req	43	No
Fairview Park Hospital	Cleveland	Church	109	16	2	82	3,093	Rotating	5	12	July	No	Req	25	$30-50
Lutheran Hospital	Cleveland	Church	137	5	40	55	4,255	Rotating	4	12	July	No	None	25	$25(e)
Mount Sinai Hospital [1]	Cleveland	NPAssn	270	20	11	69	8,270	Rotating	11	12	July	No	Op	28	$10
St. Alexis Hospital	Cleveland	Church	220	23	1	76	4,591	Rotating	8	12	July	(82)	Req	40	$10
St. John's Hospital	Cleveland	Church	214	18	5	77	5,579	Rotating	6	12	July	No	None	21	$10(w)
St. Luke's Hospital	Cleveland	Church	391	18	1	81	11,302	Rotating	18	12	July	No	Req	28	No
St. Vincent Charity Hospital	Cleveland	Church	295	35	1	64	5,879	Rotating	12	12	July	(82)	Req	40	No
University Hospitals [1]	Cleveland	NPAssn	916	35	5	60	18,469	Mix&Str	41	12-24	(1-q)	No	Req	57	(x)
Woman's Hospital [1]	Cleveland	NPAssn	110	6	11	83	2,098	Rotating	3	12	July	No	None	29	$25
Grant Hospital	Columbus	NPAssn	333	8	47	45	6,639	Rotating	8	12	July	No	None	21	$25
Mount Carmel Hospital	Columbus	Church	225	20	30	50	4,385	Rotating	6	12	July	(83)	None	33	$25
St. Francis Hospital	Columbus	State	160	71	16	13	2,988	Rotating	8	12	July	(84)	None	29	$125 yr.
Starling-Loving University Hospital [1]	Columbus	State	288	35	23	42	5,289	Rotat&Str	10	12&24	July	No	Req	50	(y)
White Cross Hospital	Columbus	Church	271	12		88	7,003	Rotating	6	12	July	No	None	32	$25
Good Samaritan Hospital [1]	Dayton	Church	248	36	10	54	4,425	Rotating	4	12	July	No	None	26	$25
Miami Valley Hospital	Dayton	NPAssn	375	23	34	43	10,465	Rotating	8	12	July	(85)	None	40	$25
St. Elizabeth Hospital	Dayton	Church	400	29	32	39	7,105	Rotating	6	12	July	No	None	23	$25
Huron Road Hospital [1]	East Cleveland	NPAssn	256	2	22	76	6,977	Rotating	9	12	July	No	Req	34	$30
Mercy Hospital	Hamilton	Church	300	25	50	25	3,376	Rotating	2	12	July	No	None	22	$25
Springfield City Hospital	Springfield	City	298	34	29	37	4,960	Rotating	6	12	July	No	Req	18	$30
Flower Hospital	Toledo	Church	130	4	30	66	2,988	Rotating	3	12	July	No	None	32	$25-30
Lucas County General Hospital	Toledo	County	315	100			4,398	Rotating	10	12	July	No	Req	25	$25
Mercy Hospital	Toledo	Church	140	23	72	5	3,070	Rotating	4	12	July	No	None	33	$25
St. Vincent's Hospital	Toledo	Church	354	29	34	37	11,286	Rotating	11	12	July	No	Req	30	$25
Toledo Hospital	Toledo	NPAssn	275	5	58	37	3,793	Rotating	5	12	July	No	None	28	$25
Women's and Children's Hospital	Toledo	NPAssn	150	6	71	23	2,576	Rotating	3	12	July	No	None	24	$25
St. Elizabeth's Hospital	Youngstown	Church	289	3	41	56	6,682	Rotating	7	12	July	No	None	15	$20(e)
Youngstown Hospital	Youngstown	NPAssn	430	25	23	52	9,919	Rotating	14	24	July	No	Op	20	$20-35
OKLAHOMA															
Oklahoma City General Hospital	Oklahoma City	Corp	112	10	30	60	3,888	Mixed	3	12	July	No	Req	19	$25
St. Anthony Hospital	Oklahoma City	Church	340	11	49	40	9,076	Rotating	9	12	July	No	None	23	$15
State University and Crippled Children's Hospitals	Oklahoma City	State	455	71	27	2	6,455	Rotating	20	24	July	No	Req	46	$10-25
Wesley Hospital	Oklahoma City	Part	160		25	75	4,332	Rotating	5	12	July	No	None	21	$25
Morningside Hospital	Tulsa	Corp	255	5	35	60	3,578	Rotating	6	12	July	No	None	18	$25(h)
St. John's Hospital	Tulsa	Church	285	33	33	34	5,645	Rotating	7	12	July	No	None	28	$25(z)
OREGON															
Emanuel Hospital [1]	Portland	Church	325	10	10	80	8,557	Rotating	9	12	June	(86)	None	35	$20
Good Samaritan Hospital	Portland	Church	350	3	5	92	11,149	Rotating	10	12	July	No	None	32	$20
Portland Sanitarium and Hospital	Portland	Church	135	11	28	61	5,112	Rotating	4	12	July	No	None	49	$40(a)
St. Vincent's Hospital	Portland	Church	420	10	40	50	10,406	Rotating	8	12	July	No	None	37	$25
Univ. of Oregon Medical School Hosps. [1]	Portland	Co-State	422	100			6,839	Rotating	16	12	July	No	Req	50	$20
PENNSYLVANIA															
Abington Memorial Hospital	Abington	NPAssn	302	25	20	55*	6,126	Rotating	10	24	July	No	Req	42	No
Allentown Hospital [1]	Allentown	NPAssn	325	45	9	46	7,411	Rotating	10	12	July	No	Req	25	No
Sacred Heart Hospital	Allentown	Church	285	60	3	37	4,486	Rotating	7	12	July	(87)	Req	31	No
Altoona Hospital [1]	Altoona	NPAssn	180	41	10	49	3,048	Rotating	5	12	July	No	Req	36	$25
Mercy Hospital	Altoona	NPAssn	144	34	1	65	3,585	Rotating	5	12	July	No	Req	19	$25
St. Luke's Hospital	Bethlehem	NPAssn	238	19	24	57	4,946	Rotating	7	12	July	No	Req	29	(h)
Braddock General Hospital	Braddock	NPAssn	142	27	15	58	2,904	Rotating	4	12	July	No	Req	26	$25
Bryn Mawr Hospital	Bryn Mawr	NPAssn	264	11	32	57	5,127	Rotating	8	12	July	No	Req	36	No
Chester Hospital	Chester	NPAssn	285	51	5	44	4,409	Rotating	6	12	July	No	Req	18	$15
George F. Geisinger Memorial Hospital	Danville	NPAssn	187	27	21	52	5,091	Rotating	10	12	July	No	Req	37	No
Fitzgerald-Mercy Hospital [1]	Darby	Church	248	60	19	21	4,263	Rotating	5	12	July	No	Req	30	No
Easton Hospital	Easton	NPAssn	220	41	6	53	4,595	Rotating	5	12	July	No	Req	15	(h)
Hamot Hospital	Erie	NPAssn	255	38	16	46	6,147	Rotating	7	12	July	No	Req	26	$25
St. Vincent's Hospital	Erie	NPAssn	224	33		67	6,295	Rotating	10	12	July	No	Req	15	$15(e)
Harrisburg Hospital [1]	Harrisburg	NPAssn	264	42	7	51	6,358	Rotating	8	12	July	No	Req	42	$15
Harrisburg Polyclinic Hospital	Harrisburg	NPAssn	182	41		59	3,744	Rotating	4	12	July	No	Req	26	$25
Conemaugh Valley Memorial Hospital	Johnstown	NPAssn	335	47	14	38	6,074	Rotating	8	12	July	No	Op	22	No
Nesbitt Memorial Hospital	Kingston	NPAssn	150	24	10	66	3,218	Rotating	3	12	July	No	Req	22	No
Lancaster General Hospital [1]	Lancaster	NPAssn	277	32	3	65	6,122	Rotating	7	12	July	No	Req	49	$17.50
St. Joseph's Hospital [1]	Lancaster	Church	230	35	25	40	4,174	Rotating	5	12	July	No	Req	34	$17.50
McKeesport Hospital	McKeesport	NPAssn	283	32	6	62	5,678	Rotating	7	12	July	No	Req	21	$25
Montgomery Hospital	Norristown	NPAssn	110	46	15	39	2,758	Rotating	4	12	July	No	Req	35	$30
Chestnut Hill Hospital	Philadelphia	NPAssn	114	11	20	69	1,854	Rotating	4	12	July	No	Req	32	$50
Frankford Hospital	Philadelphia	NPAssn	142	12	18	70	3,458	Rotating	7	12	July	No	Req	18	No
Germantown Dispensary and Hospital	Philadelphia	NPAssn	396	20	30	50	7,301	Rotating	12	24	July	No	Req	39	No
Graduate Hospital of the University of Pennsylvania	Philadelphia	NPAssn	454	33	31	36	6,804	Rotating	16	24	July	(88)	Req	35	No
Hahnemann Hospital [1]	Philadelphia	NPAssn	592	31	29	40	11,343	Rotating	24	12	July	No	Req	28	No
Hospital of the Protestant Episcopal Church	Philadelphia	Church	530	70	14	16	7,803	Rotating	18	24	Jan. & July	No	Req	50	No
Hospital of the Univ. of Pennsylvania [1]	Philadelphia	State	598	28	31	41	11,201	Rotating	28	24	July	No	Req	66	No
Hosp. of the Woman's Medical College [2]	Philadelphia	NPAssn	173	18	38	44	3,441	Rotating	6	12	July & Sept.	No	Req	41	No
Jefferson Medical College Hospital	Philadelphia	NPAssn	688	49	20	31	13,015	Rotating	28	27	June	No	Req	49	No
Jewish Hospital [1]	Philadelphia	NPAssn	475	31	15	54	7,050	Rotating	18	24	June	(89)	Req	46	No
Lankenau Hospital	Philadelphia	NPAssn	296	31	10	59	4,344	Rotating	10	24	July	(90)	Req	34	No
Mercy Hospital [1] (col.)	Philadelphia	NPAssn	110	44	45	11	2,194	Rotating	5	12	July	(91)	Req	21	$10
Methodist Episcopal Hospital	Philadelphia	Church	196	43	8	49	4,030	Rotating	8	12	July	No	Req	19	No
Misericordia Hospital [1]	Philadelphia	Church	230	20	10	70	4,858	Rotating	9	12	July	No	Req	47	No
Mount Sinai Hospital [1]	Philadelphia	NPAssn	316	20	39	41	7,333	Rotating	14	12	June	No	Req	50	No
Northeastern Hospital	Philadelphia	NPAssn	102	10	18	72	2,572	Rotating	4	12	July	No	Req	21	$20
Pennsylvania Hospital	Philadelphia	NPAssn	560	28	42	30	8,849	Rotating	24	24	(1-r)	(92)	Req	52	No
Philadelphia General Hospital [1]	Philadelphia	City	2,400	95	4	1	25,845	Rotating	60	24	July	(89)	Req	52	No

Numerical and other references will be found on page 831.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
PENNSYLVANIA—Continued															
Presbyterian Hospital	Philadelphia	Church	356	16	15	69	5,165	Rotating	12	24	July	No	Req	53	No
St. Agnes Hospital	Philadelphia	Church	406	28	44	28	7,166	Rotating	12	12	July	No	Req	19	No
St. Joseph's Hospital	Philadelphia	Church	180	35	20	45	3,165	Rotating	6	12	July	No	Req	20	No
St. Luke's and Children's Hospital	Philadelphia	NPAssn	282	25	23	52	5,525	Rotating	8	12	July	No	Req	32	No
St. Mary's Hospital	Philadelphia	Church	294	65	15	20	4,429	Rotating	7	12	July	No	Req	21	No
Temple University Hospital	Philadelphia	NPAssn	420	38	50	12	9,681	Rotating	18	24	July	(93)	Req	45	No
U. S. Naval Hospital	Philadelphia	Navy	650	100			6,209	Rotating	5	12	July	(94)	Op	39	(b)
Woman's Hospital [2]	Philadelphia	NPAssn	150	43	38	19	3,520	Rotating	6	12	July & Sept.	(95)	Req	48	No
Women's Homoeopathic Hospital	Philadelphia	NPAssn	200	39	11	50	3,018	Rotating	4	12	July	No	Req	20	$10
Allegheny General Hospital [1]	Pittsburgh	NPAssn	592	54	5	41	8,233	Rotating	16	12	July	No	Req	25	No
Mercy Hospital [1]	Pittsburgh	Church	670	35	35	30	12,412	Rotating	24	12	July	(97)	Req	24	No
Montefiore Hospital	Pittsburgh	NPAssn	230	37	44	19	6,479	Rotating	9	12	July	No	Req	37	No
Passavant Hospital [1]	Pittsburgh	Church	140	33	7	60	2,819	Rotating	5	12	July	No	Req	26	(i)
Pittsburgh Hospital	Pittsburgh	NPAssn	208	27	8	65	4,168	Rotating	6	12	July	No	Req	26	$25
Presbyterian Hospital [1]	Pittsburgh	NPAssn	145	42	9	49	2,708	Rotating	18	12	July	(98)	Req	29	No
St. Francis Hospital [1]	Pittsburgh	Church	640	14	16	70	10,459	Rotating	20	12	July	(96)	Req	21	No
St. John's General Hospital	Pittsburgh	NPAssn	202	25	6	69	4,082	Rotating	5	12	July	No	Req	22	No
St. Joseph's Hospital	Pittsburgh	Church	140	27	61	12	2,446	Rotating	4	12	July	No	Req	31	No
St. Margaret Memorial Hospital	Pittsburgh	Church	150	38	36	26	2,581	Rotating	4	12	July	No	Req	40	No
Shadyside Hospital	Pittsburgh	NPAssn	275	30	3	67	5,136	Rotating	8	12	July	(96)	Op	20	No
South Side Hospital	Pittsburgh	NPAssn	225	43	34	23	5,450	Rotating	7	12	July	No	Req	17	No
Western Pennsylvania Hospital [1]	Pittsburgh	NPAssn	661	32		68	11,841	Rotating	19	12	July	No	Req	21	No
Pottsville Hospital [1]	Pottsville	NPAssn	150	51	2	47	3,399	Rotating	5	12	July	No	Req	15	$25
Homoeopathic Med. and Surgical Hosp.	Reading	NPAssn	119	59	3	38	2,567	Rotating	4	12	June	No	Req	20	$25
Reading Hospital	Reading	NPAssn	289	42	13	45	6,667	Rotating	8	12	July	No	Req	64	No
St. Joseph's Hospital	Reading	Church	205	35	3	62	4,229	Rotating	6	12	July	(99)	Req	25	No
Robert Packer Hospital	Sayre	NPAssn	325	50	5	45	7,309	Rotating	9	12	Jan. & July	No	Req	44	No
Hahnemann Hospital	Scranton	NPAssn	125	54		46	3,071	Rotating	4	12	July	No	Req	15	$12.50
Moses Taylor Hospital	Scranton	NPAssn	125	61		39	2,199	Rotating	4	12&24	July	(100)	Req	36	$15
Scranton State Hospital	Scranton	State	276	85	3	12	4,406	Rotating	8	12	July	No	Req	27	$8.33
Valley Hospital	Sewickley	NPAssn	140	24	4	72	3,027	Rotating	4	12	July	No	Req	21	$25
Uniontown Hospital	Uniontown	NPAssn	225	28	6	66	5,269	Rotating	5	12	July	No	Req	28	$25
Washington Hospital	Washington	NPAssn	166	25	9	66	3,496	Rotating	5	12	July	No	Req	33	$25
Chester County Hospital	West Chester	NPAssn	159	31	15	54	3,171	Rotating	4	12	July	No	Req	25	$25
Mercy Hospital [1]	Wilkes-Barre	Church	220	62	1	37	4,288	Rotating	6	12	July	No	Req	23	(s)
Wilkes-Barre General Hospital	Wilkes-Barre	NPAssn	405	64	3	33	8,635	Rotating	12	12	July	No	Req	30	No
Columbia Hospital [1]	Wilkinsburg	Church	213	44	5	51	4,101	Rotating	5	12	July	No	Req	29	$20
Williamsport Hospital [1]	Williamsport	NPAssn	275	45	5	50	4,900	Rotating	6	12	July	No	Req	29	$10
Windber Hospital [1]	Windber	NPAssn	117	10	70	20	3,157	Rotating	4	12	July	No	Req	32	$25
York Hospital	York	NPAssn	209	44	7	49	4,980	Rotating	8	12	July	No	Req	38	$25
RHODE ISLAND															
Memorial Hospital	Pawtucket	NPAssn	196	42	9	49	3,193	Rotating	6	18	June & Sept.	No	Req	31	No
Homeopathic Hospital	Providence	NPAssn	200	16	24	60	4,933	Rotating	4	12	July	No	Req	39	$50
Rhode Island Hospital	Providence	NPAssn	580	39	34	27	10,890	Rotating	27	24	(1-s)	(101)	Req	36	No
St. Joseph's Hospital	Providence	Church	350	43	16	41	4,846	Rotating	7	24	(1-p)	No	Req	23	No
SOUTH CAROLINA															
Roper Hospital	Charleston	NPAssn	300	71	5	24	7,644	Rotating	15	12	July	No	Req	36	$10
Columbia Hospital [1]	Columbia	County	305	25	12	63	7,131	Rotating	6	12	July & Oct.	No	Req	20	$35(h)
Greenville General Hospital	Greenville	City	200	46	9	45	4,893	Rotating	5	12	July	(102)	Req	27	$15(m)
TENNESSEE															
Baroness Erlanger Hospital	Chattanooga	CyCo	251	5	81	14	7,141	Rotating	12	12	July	(57)	Req	30	$25
Knoxville General Hospital	Knoxville	City	312	65		35	7,166	Rotating	10	18	(1-c)	No	Req	18	$25
Baptist Memorial Hospital	Memphis	Church	400	27	15	58	14,511	Rotating	14	18	(1-m)	No	None	19	$25
John Gaston Hospital	Memphis	City	550	97		3	14,567	Rotating	24	12&18	(1-s)	No	Req	21	$20
Methodist Hospital	Memphis	Church	185	30	15	55	6,486	Mixed	4	12	(1-c)	No	None	33	$50
St. Joseph's Hospital	Memphis	Church	295	30	45	25	7,173	Rotating	5	12	(1-c)	No	Req	21	$25
George W. Hubbard Hospital [1] (col.)	Nashville	NPAssn	172	91	9		2,289	Rotating	8	12	July	No	Req	25	$15(l)
Nashville General Hospital	Nashville	City	305	90		10	6,785	Rotating	11	12	July	No	Req	31	$20
St. Thomas Hospital	Nashville	Church	225	5	45	50	5,776	Rotating	5	12	July	No	None	24	$40
Vanderbilt University Hospital [1]	Nashville	NPAssn	210	29	33	38	4,886	Straight	14	12	July	(103)	Op	63	$23.75
TEXAS															
Baylor University Hospital [1]	Dallas	Church	433	20	20	60	13,787	Rotating	15	12	July	No	Req	34	$25
Medical Arts Hospital	Dallas	Indiv	86			100	3,819	Rotating	3	12	July	(104)	None	18	$35
Methodist Hospital	Dallas	Church	125	3	22	75	3,784	Rotating	4	12	July	No	Req	25	$25(h)
Parkland Hospital [1]	Dallas	CyCo	387	91	9		8,935	Rotating	12	12	Jan. & July	No	Req	15	$10
St. Paul's Hospital	Dallas	Church	300	10	15	75	8,947	Rotating	10	12	July	No	Req	15	$25
El Paso City-County Hospital	El Paso	CyCo	204	95	5		3,645	Rotating	5	12	July	No	Req	39	$25(i)
Methodist Hospital	Fort Worth	Church	160				3,229	Rotating	5	12	July	No	Req	15	No
St. Joseph's Hospital	Fort Worth	Church	190	12	11	77	4,374	Rotating	6	12	July	No	None	15	$30(j)
John Sealy Hospital	Galveston	City	446	50	25	25	5,835	Rotating	12	12	July	No	Req	52	No
St. Mary's Infirmary [1]	Galveston	Church	225	15	30	55	3,902	Mixed	3	12	June	No	None	15	$30
Hermann Hospital	Houston	NPAssn	224	75		25	4,496	Rotating	8	12	July	No	Req	37	$25
Jefferson Davis Hospital [1]	Houston	CyCo	432	100			8,336	Rotating	20	24	July	No	Req	20	$25-50
Medical and Surgical Memorial Hosp.	San Antonio	NPAssn	115	2	5	93	3,324	Mixed	4	12	July	No	None	23	$25
Nix Hospital [1]	San Antonio	Corp	169			100	5,315	Rotating	4	12	July	(105)	None	23	$25
Robert B. Green Memorial Hospital	San Antonio	County	195	100			4,942	Rotating	12	12	July	No	Req	32	$10
Santa Rosa Hospital	San Antonio	Church	305	16	11	73	5,982	Rotating	6	12	July	No	Req	17	$25
Gulf, Colorado and Santa Fe Hospital	Temple	NPAssn	150			100*	1,269	Rotating	1	12	July	(106)	None	26	$50
Kings Daughters Clinic and Hospital	Temple	NPAssn	118	20	25	55	2,811	Mixed	3	12	July	No	Req	19	$50
Scott and White Hospital	Temple	Corp	175			*	3,595	Rotating	8	12	July	(106)	Req	19	$50
Providence Hospital	Waco	Church	150	9	53	38	4,755	Mixed	4	12	June	No	None	21	$25
UTAH															
Thomas D. Dee Memorial Hospital	Ogden	Church	240	7	10	83	6,085	Rotating	5	12	July	No	Op	26	$25
Dr. W. H. Groves Latter-Day Saints Hospital	Salt Lake City	Church	430			100	8,001	Rotating	11	24	July	(107)	Req	22	$15-20(z)
Holy Cross Hospital	Salt Lake City	Church	242	3	23	74	3,883	Mixed	3	12	Jan. & July	No	None	29	$15(r)
St. Mark's Hospital [1]	Salt Lake City	Church	168	4	12	84	3,518	Rotating	3	12	July	No	None	16	$25(h)
Salt Lake County General Hospital	Salt Lake City	County	252	94	6		3,248	Rotating	8	12	July	No	Req	18	$15(l)
VERMONT															
Bishop DeGoesbriand Hospital	Burlington	Church	122	52	21	27	3,235	Rotating	3	12	July	No	None	29	$25
Mary Fletcher Hospital	Burlington	NPAssn	150	24	39	37	7,308	Rotating	5	12	July & Sept.	No	None	36	$25

Numerical and other references will be found on page 831.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
VIRGINIA															
University of Virginia Hospital	Charlottesville	State	378	30	35	35	8,173	Rotating	12	12	July	(108)	Req	45	No
Hospital of St. Vincent de Paul	Norfolk	Church	250	50	20	30	4,145	Rotating	4	12	July	No	Req	18	$25
Norfolk General Hospital	Norfolk	NPAssn	230	26	33	41	7,170	Rotating	6	12	July & Oct.	No	Req	34	$25
U. S. Marine Hospital	Norfolk	USPHS	360	100			3,220	Rotating	8	12	July	(109)	Op	72	(b)
Norfolk Naval Hospital	Portsmouth	Navy	443	100			3,241	Rotating	..	12	July	Ne	None	51	(b)
Johnston-Willis Hospital	Richmond	Corp	141	2	5	93	3,941	Rotating	3	12	July	No	Req	15	$15
Medical College of Virginia, Hospital Division [1] (Memorial, Dooley, St. Philip and Crippled Children's Hosps.)	Richmond	NPAssn	441	5	82	13	9,979	Rotat&Mix	25	12	July	(110)	Req	42	No
Stuart Circle Hospital	Richmond	Corp	108	2	48	50	2,862	Rotating	4	12	July	No	Req	47	$25
Jefferson Hospital	Roanoke	NPAssn	122	20	45	35	2,063	Mixed	2	12	July	No	Req	28	$50
WASHINGTON															
Columbus Hospital	Seattle	Church	230	22	23	55	2,830	Rotating	3	12	July	No	Req	29	$30
King County Hospital Unit No. 1 [1] (Harborview)	Seattle	County	445	100			10,403	Rotating	24	24	July	No	Req	51	$30
Providence Hospital	Seattle	Church	380	3	19	78	7,694	Rotating	8	12	July	No	Req	26	$30
Seattle General Hospital	Seattle	NPAssn	120	2	8	90	3,893	Rotating	4	12	July	(111)	Req	19	$30
Swedish Hospital	Seattle	NPAssn	310	3	12	85	5,371	Rotating	8	12	July & Oct.	(112)	Req	25	$30
U. S. Marine Hospital	Seattle	USPHS	400	100			3,059	Rotating	8	12	July	(113)	Req	60	(b)
Virginia Mason Hospital	Seattle	NPAssn	173		11	89	4,027	Rotating	4	12	July	No	Req	47	$30
Deaconess Hospital	Spokane	Church	257	25	15	60	4,988	Rotating	4	12	July	(114)	None	21	$25
Sacred Heart Hospital	Spokane	Church	334	22	22	56	9,068	Rotating	6	12	July	(114)	None	22	$25
St. Luke's Hospital	Spokane	NPAssn	193	5	20	75	3,388	Rotating	4	12	July	(115)	None	27	$25
Pierce County Hospital	Tacoma	County	220	100			3,287	Mixed	3	12	July	No	Req	45	$45
St. Joseph's Hospital	Tacoma	Church	350	20	19	61	3,960	Rotating	4	12	July	No	None	46	$30
Tacoma General Hospital	Tacoma	NPAssn	220			100	4,335	Rotating	4	12	July	No	None	15	$35
WEST VIRGINIA															
Charleston General Hospital	Charleston	NPAssn	245	10	40	50	6,765	Rotating	7	12	July	No	Req	24	$25
Chesapeake and Ohio Railway Hospital	Huntington	NPAssn	130	69	31		2,746	Rotating	4	12	July	No	Req	29	$37.50
St. Mary's Hospital	Huntington	Church	134	26	20	54	3,845	Rotating	3	12	July	No	Req	20	$25
St. Joseph's Hospital	Parkersburg	Church	160	8	15	77	2,636	Rotating	3	12	July	No	None	40	$30
Ohio Valley General Hospital	Wheeling	NPAssn	272	2	50	48	5,942	Rotating	8	12	July	No	Req	19	$25
Wheeling Hospital	Wheeling	Church	330	7	9	84	3,635	Rotating	5	12	July	No	None	23	$40
WISCONSIN															
St. Elizabeth Hospital	Appleton	Church	230	25	50	25	3,879	Rotating	2	12	July	No	None	34	$25
St. Agnes Hospital	Fond du Lac	Church	252	20	15	65	5,324	Rotating	5	12	June	No	None	26	$25
La Crosse Lutheran Hospital	La Crosse	Church	139	5	10	85	2,670	Mixed	2	12	July	No	Op	33	$50
St. Francis Hospital	La Crosse	Church	325	21	24	55	4,989	Rotating	3	12	July	No	Req	36	$20
Madison General Hospital	Madison	NPAssn	185	4	14	82	4,869	Rotating	6	12	June & July	No	None	29	$25
Methodist Hospital	Madison	Church	120	3	10	87	2,277	Rotating	4	12	July	No	Req	16	$30
St. Mary's Hospital	Madison	Church	205	15	25	60	5,016	Rotating	5	12	July	No	None	39	$25
State of Wisconsin General Hospital [1]	Madison	State	672	85	10	5	11,689	Rotating	24	12	July	No	Op	68	No
St. Joseph's Hospital	Marshfield	Church	180	6	54	40	3,398	Mixed	2	12	July	No	None	21	$30
Columbia Hospital	Milwaukee	NPAssn	150	14	15	71	3,375	Rotating	8	24	July	(116)	Req	52	$25
Evangelical Deaconess Hospital [1]	Milwaukee	Church	163	3	28	69	4,507	Rotating	3	12	June & July	(117)	None	24	$35
Milwaukee Hospital "The Passavant"	Milwaukee	Church	263	5	15	80	7,158	Rotating	7	12	July	(118)	Req	47	$25
Misericordia Hospital	Milwaukee	Church	150	3	13	84	4,044	Mixed	4	12	June	No	None	22	$35
Mount Sinai Hospital	Milwaukee	NPAssn	170	11	71	18	6,419	Rotating	6	12	July	No	Req	32	$25
St. Joseph's Hospital	Milwaukee	Church	400	13	10	77	7,238	Rotating	6	12	July	No	None	20	$25
St. Luke's Hospital	Milwaukee	Church	125	1	7	92	4,249	Mixed	2	12	July	No	None	24	$50
St. Mary's Hospital	Milwaukee	Church	217	7	9	84	4,882	Rotating	6	12	July	No	Op	29	$25
Mercy Hospital [1]	Oshkosh	Church	150	10	25	65	3,144	Rotating	3	12	July	No	None	38	$25
St. Mary's Hospital	Racine	Church	198	2	9	89	4,705	Mixed	2	12	July	(119)	None	34	$25
St. Mary's Hospital	Superior	Church	130	2	41	57	2,030	Mixed	2	12	July	No	Req	44	$25
Milwaukee County Hospital [1]	Wauwatosa	County	1,125	98	1	1	16,832	Rotating	38	12	June	(120)	Req	36	$10
CANAL ZONE															
Gorgas Hospital	Ancon	Fed	872	9	91		12,801	Rotating	8	12	July	No	Op	49	(aa)
HAWAII															
Queen's Hospital	Honolulu	NPAssn	325	5	60	35	8,878	Rotating	7(bb)	18	(1-c)	(121)	None	45	$45-90
PHILIPPINE ISLANDS															
Philippine General Hospital [1]	Manila	Gov't	727	93	4	3	22,740	Rotating	31(cc)	12	March	(122)	Req	78	No
PUERTO RICO															
Presbyterian Hospital [1]	San Juan	Church	136	60	25	15	2,622	Rotating	4	12	July	No	Req	29	$10

Numerical and other references will be found on page 831.

HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

For the benefit of graduates of approved medical colleges who desire an internship in Canada, the Council on Medical Education and Hospitals of the American Medical Association has declared that hospitals which conform to the standards of the Department of Hospital Service of the Canadian Medical Association should be regarded as giving an internship equivalent in educational value to that offered by hospitals in the United States approved for intern training by the Council. It is understood, however, that this statement applies only to hospitals that are unqualifiedly "Approved" under the Canadian plan and does not apply to that group referred to as "Recommended."

The following list of hospitals, revised to June 1, 1938, has been furnished by the Department of Hospital Service.

Name of Hospital	Location
Victoria General Hospital	Halifax, N. S.
St. John General Hospital	St. John, N. B.
Hospital du St. Sacrament	Quebec, Que.
Hotel Dieu de Quebec	Quebec, Que.
Jeffrey Hale's Hospital	Quebec, Que.
Children's Memorial Hosp.	Montreal, Que.
Hospital Notre Dame	Montreal, Que.
Hospital Ste. Justine	Montreal, Que.
Hotel Dieu of St. Joseph	Montreal, Que.
Hospital Ste. Luc	Montreal, Que.
Jewish General Hospital	Montreal, Que.
Montreal General Hospital	Montreal, Que.
Royal Victoria Hospital	Montreal, Que.
St. Mary's Hospital	Montreal, Que.
McKellar General Hospital	Fort William, Ont.
St. Joseph's Hospital	Hamilton, Ont.
Ottawa Civic Hospital	Ottawa, Ont.
Ottawa General Hospital	Ottawa, Ont.
Kingston General Hospital	Kingston, Ont.
Hospital for Sick Children	Toronto, Ont.
Mount Sinai Hospital	Toronto, Ont.
St. Joseph's Hospital	Toronto, Ont.
St. Michael's Hospital	Toronto, Ont.
Toronto East General Hosp.	Toronto, Ont.
Toronto General Hospital	Toronto, Ont.
Toronto Western Hospital	Toronto, Ont.
Women's College Hospital	Toronto, Ont.
Hamilton General Hospital	Hamilton, Ont.
Brantford General Hospital	Brantford, Ont.
St. Joseph's Hospital	London, Ont.
Victoria General Hospital	London, Ont
Metropolitan General Hosp.	Windsor, Ont.
Hotel Dieu of St. Joseph Hosp.	Windsor, Ont.
Children's Hospital	Winnipeg, Man.
Misericordia Hospital	Winnipeg, Man.
Winnipeg General Hospital	Winnipeg, Man.
St. Boniface General Hosp.	St. Boniface, Man.
Regina Grey Nuns' Hospital	Regina, Sask.
Regina General Hospital	Regina, Sask.
St. Paul's Hospital	Saskatoon, Sask.
Saskatoon City Hospital	Saskatoon, Sask.
Edmonton General Hospital	Edmonton, Alta.
Misericordia Hospital	Edmonton, Alta.
Royal Alexandra Hospital	Edmonton, Alta.
University of Alberta Hosp.	Edmonton, Alta.
St. Paul's Hospital	Vancouver, B. C.
Vancouver General Hospital	Vancouver, B. C.
Provincial Royal Jubilee Hosp.	Victoria, B. C.
St. Joseph's Hospital	Victoria, B. C.

NOTES

1. Women interns admitted.
2. Women interns only.
* Majority of patients available for teaching purposes.
(a) In lieu of maintenance.
(b) Salary established by government pay tables.
(c) $30 per month second year.
(d) Bonus of $110.
(e) Bonus of $60.
(f) Bonus of $250.
(g) Bonus of $180.
(h) Bonus of $100.
(i) Bonus of $120.
(j) Bonus of $20.
(k) Bonus of $300.
(m) Bonus of $25.
(n) Bonus of $150.
(o) $10 per month second year.
(p) $25 per month second year.
(q) $25 per month first year; $50 per month second year; bonus of $100.
(r) Bonus of $50.
(s) Bonus of $40.
(t) $15 per month second year.
(u) $25 per month for 4 months; $50 per month for 8 months; bonus of $100.
(v) Bonus of $125.
(w) Bonus of $30.
(x) $20 per month to seniors after completion of 12 months' service.
(y) Bonus of $50 first year; $100 second year.
(z) Bonus of $75.
(aa) Net salary $75 per month. Appointments made by Chief of Office, The Panama Canal, Washington, D. C.
(bb) Prefer aspirants going into foreign missions or boys born and raised in Hawaii.
(cc) All internships reserved for the fifth year students of the College of Medicine, University of the Philippines.
(dd) $25 per month after first 6 months; $50 per month second year.
(1-a) January, July, October.
(1-b) January, March, July, September, November.
(1-c) Quarterly.
(1-d) Every two months.
(1-e) January, May, September.
(1-f) January, April, July.
(1-g) April, July, October.
(1-h) Medicine: January, April, July, October; surgery: March, June, September, December.
(1-i) January, April, May, July, September, October.
(1-j) April, July, September.
(1-k) Medicine: February, June, October; surgery: every other month; pathology and roentgenology, July.
(1-m) Every six weeks.
(1-n) January, April, July, September.
(1-o) March, June, September, December.
(1-p) March, July, November.
(1-q) February, June, October.
(1-r) July, September, November.
(1-s) Monthly.

Affiliation as Referred to in Column Headed: "Affiliated Service"

3. Arkansas Children's Home and Hospital, Little Rock, pediatrics.
4. Patton State Hospital, Patton, psychiatry.
5. Children's Hospital, Los Angeles Maternity Service, pediatrics, obstetrics.
6. Fairmont Hospital, San Leandro, tuberculosis.
7. Woman's Hospital, Pasadena, obstetrics.
8. Mercy Hospital, San Diego, obstetrics, gynecology, pediatrics.
9. Laguna Honda Home Infirmary, San Francisco, chronic diseases; Hassler Health Home, Redwood City, tuberculosis.
10. St. Francis Hospital, San Francisco, obstetrics, pediatrics.
11. San Francisco Hospital, obstetrics, gynecology, pediatrics.
12. Delaware State Hospital, Farnhurst, psychiatry.
13. Santa Barbara General Hospital, communicable diseases, tuberculosis, psychiatry, outpatient service.
14. Porter Sanitarium and Hospital, Denver, general.
15. St. Elizabeths Hospital, Washington, obstetrics.
16. Gallinger Municipal Hospital, Washington, pediatrics, tuberculosis, communicable diseases, psychiatry.
17. Gallinger Municipal Hospital, Children's Hospital, Washington, obstetrics, pediatrics.
18. Grady Hospital, Atlanta, pediatrics.
19. Grady Hospital, Atlanta, obstetrics.
20. Misericordia Hospital and Home for Infants, Chicago, obstetrics.
21. Winfield Sanatorium, Winfield, tuberculosis.
22. Chicago Maternity Center, obstetrics, gynecology.
23. Rotation service established between Broadlawns and approved private hospitals.
24. Watkins Memorial Hospital, Lawrence.
25. Sedgwick County Hospital, Wichita, surgery, outpatient service.
26. Salvation Army Home and Hospital, Sedgwick County Hospital, Wichita, obstetrics, general.
27. Louisville City Hospital, Children's Free Hospital, obstetrics, pediatrics.
28. Children's Free Hospital, Louisville, pediatrics; Waverly Hills Sanatorium, Waverly Hills, tuberculosis.
29. Charity Hospital, New Orleans, obstetrics, gynecology, pediatrics.
30. Johns Hopkins Hospital, Baltimore, pathology.
31. Johns Hopkins Hospital, Baltimore, urology.
32. Sydenham Hospital, University Hospital, Baltimore, communicable diseases, pediatrics, obstetrics.
33. Sydenham Hospital, Baltimore, communicable diseases.
34. Boston State Hospital, Worcester State Hospital, Children's Hospital, psychiatry, pediatrics.
35. Evangeline Booth Maternity Hospital and Home, Boston.
36. Norfolk County Hospital, South Braintree, tuberculosis.
37. Shriners Hospital for Crippled Children, Health Department Hospital, Wesson Maternity Hospital, Springfield, orthopedics, communicable diseases, obstetrics.
38. Mercywood Sanitarium, Ann Arbor, psychiatry.
39. Herman Kiefer Hospital, Detroit.
40. Herman Kiefer Hospital, Children's Hospital, Detroit.
41. Herman Kiefer Hospital, communicable diseases, tuberculosis; St. Joseph's Retreat, Dearborn, neurology.
42. Christian Psychopathic Hospital, Sunshine Sanatorium, Grand Rapids, psychiatry, tuberculosis; Kalamazoo State Hospital, psychiatry.
43. Jackson County Tuberculosis Sanatorium, Jackson County Isolation Hospital, Michigan State Prison Hospital, Jackson.
44. Jackson County Tuberculosis Sanatorium, Jackson County Isolation Hospital, Jackson.
45. Ingham Sanatorium and Boys' Vocational School Hospital, Lansing, tuberculosis, otolaryngology.
46. Miller Memorial Hospital, Duluth, outpatient service.
47. Miller Memorial Hospital, Hearding Hospital, Duluth, outpatient service.
48. Gillette State Hospital for Crippled Children, St. Paul, pediatrics, orthopedics.
49. St. Peter State Hospital, St. Peter, psychiatry.
50. Shriners Hospital for Crippled Children, Minneapolis, orthopedics.
51. Children's Hospital, St. Paul, pediatrics.
52. St. Louis Children's Hospital, Shriners Hospital for Crippled Children, City Isolation Hospital, surgery, orthopedics, communicable diseases.
53. Jewish Sanatorium, Robertson, tuberculosis; City Isolation Hospital, St. Louis, communicable diseases.
54. Alexian Brothers Hospital, neurology, outpatient service.
55. City Isolation Hospital, communicable diseases; Robert Koch Hospital, tuberculosis; City Sanitarium, psychiatry.
56. City Isolation Hospital, St. Louis.
57. Pine Breeze Sanatorium, Children's Hospital, Chattanooga, tuberculosis, pediatrics.
58. Newark City Hospital, obstetrics, gynecology, pediatrics.
59. "Bergen Pines" Bergen County Hospital, Ridgewood, tuberculosis, communicable diseases.
60. Margaret Hague Maternity Hospital, Jersey City; Hudson County Tuberculosis Hospital and Sanatorium, Secaucus.
61. Margaret Hague Maternity Hospital, Jersey City.
62. New Jersey State Hospital, Marlboro, psychiatry; Allenwood Sanatorium, Allenwood, tuberculosis.
63. Fairview Sanatorium, New Lisbon, tuberculosis.
64. Anthony N. Brady Maternity Hospital, Albany.
65. Kingston Avenue Hospital, Brooklyn, communicable diseases.
66. Brooklyn Home for Consumptives.
67. Children's Hospital, Buffalo, pediatrics.
68. Emergency Hospital of the Sisters of Charity, St. Mary's Infant Asylum and Maternity Hospital, Providence Retreat.
69. Binghamton State Hospital, Binghamton, psychiatry.
70. Ulster County Tuberculosis Hospital, Kingston.
71. Jewish Maternity Hospital, New York City.
72. New York State Hospital, Ray Brook, tuberculosis.
73. Misericordia Hospital, New York City, obstetrics, pediatrics.
74. Rotation service established between Hospital of the Good Shepherd, Syracuse Memorial Hospital, City Hospital and Syracuse Psychopathic Hospital.
75. Cass County Hospital, Fargo, obstetrics.
76. Children's Hospital, Akron, pediatrics.
77. Molly Stark Sanatorium, Canton, tuberculosis; Massillon State Hospital, Massillon, psychiatry.
78. Children's Hospital, Cincinnati, pediatrics.
79. Hamilton County Tuberculosis Sanatorium, Hamilton County Home and Chronic Disease Hospital, Cincinnati.
80. Longview State Hospital, Cincinnati, psychiatry.
81. Cincinnati General Hospital, pediatrics, otolaryngology.
82. St. Ann's Maternity Hospital, Cleveland.
83. Children's Hospital, Columbus, pediatrics.
84. Starling-Loving University Hospital, Children's Hospital, Columbus, obstetrics, pediatrics.
85. Stillwater Sanatorium, Dayton, tuberculosis.
86. Shriners Hospital for Crippled Children, Portland, orthopedics.
87. Allentown State Hospital, psychiatry.
88. Hospital of the University of Pennsylvania, Philadelphia, obstetrics.
89. Philadelphia Hospital for Contagious Diseases.
90. Children's Hospital of the Mary J. Drexel Home, Philadelphia, pediatrics.
91. Henry Phipps Institute of the University of Pennsylvania, Philadelphia, tuberculosis.
92. Children's Hospital, Philadelphia, pediatrics.
93. Shriners Hospital for Crippled Children, Philadelphia Hospital for Contagious Diseases.
94. Misericordia Hospital, Philadelphia, obstetrics, gynecology.
95. Pennsylvania Hospital, Department for Mental and Nervous Diseases, Philadelphia.
96. Municipal Hospital for Contagious Diseases, Pittsburgh.
97. Rosalia Foundling and Maternity Hospital, Municipal Hospital for Contagious Diseases, Pittsburgh.
98. Elizabeth Steel Magee Hospital, Children's Hospital, Eye and Ear Hospital, Pittsburgh.
99. Berks County Tuberculosis Sanatorium, Reading.
100. Scranton State Hospital, obstetrics.
101. Providence Lying-in Hospital.
102. Greenville County Sanatorium, tuberculosis.
103. Willard Parker Hospital, New York City, pediatrics.
104. Bradford Memorial Hospital for Babies, Parkland Hospital, Baylor University Hospital, Dallas.
105. Mission Home, San Antonio, obstetrics.
106. Gulf, Colorado and Santa Fe Hospital and Scott and White Hospital, affiliated, furnish one internship.
107. Utah State Hospital, Provo, psychiatry.
108. Blue Ridge Sanatorium, Charlottesville, tuberculosis.
109. Norfolk Protestant Hospital, Florence Crittenton Home, Children's Clinic of the Kings Daughters, Norfolk, obstetrics, pediatrics.
110. Pine Camp Hospital, Brook Hill, tuberculosis.
111. Children's Orthopedic Hospital, Florence Crittenton Home, Seattle.
112. Firlands Sanatorium and Isolation Hospital, Richmond Highlands, tuberculosis, communicable diseases; Children's Orthopedic Hospital, Seattle, pediatrics, orthopedics.
113. King County Hospital, Seattle, obstetrics, gynecology, pediatrics.
114. Edgecliff Sanatorium, Spokane, tuberculosis.
115. Edgecliff Sanatorium, Salvation Army Women's Hospital and Home, Florence Crittenton Home, Spokane, tuberculosis, obstetrics.
116. Milwaukee Children's Hospital, South View Hospital, Milwaukee, pediatrics, communicable diseases; Milwaukee Sanitarium, Wauwatosa, psychiatry.
117. Milwaukee Children's Hospital, pediatrics.
118. Salvation Army Martha Washington Women's Home and Hospital, Wauwatosa, obstetrics.
119. Lincoln Memorial Hospital for Communicable Diseases, Racine.
120. South View Hospital, Milwaukee, communicable diseases.
121. Kauikeolani Children's Hospital, Honolulu, pediatrics.
122. Santol Tuberculosis Sanatorium, Santol; Insular Psychopathic Hospital, Mandaluyong.
123. Los Angeles Maternity Service.
124. Kalamazoo State Hospital, psychiatry.

HOSPITALS APPROVED FOR RESIDENCIES IN SPECIALTIES

By the Council on Medical Education and Hospitals

HOSPITALS, 451; RESIDENCIES, 3,700

The following hospitals, conforming to the standards of the Council, furnish acceptable residencies in the several specialties designated. Applicants are required to present evidence of graduation from an approved medical school and completion of at least one year of approved internship. In a few cases, equivalent experience in practice is accepted in lieu of preliminary hospital experience.

Regulations for Certification: It is important to emphasize that residencies alone are not necessarily sufficient preparation for the practice of a specialty. Other types of training are also available and may be required. Candidates should acquaint themselves with the requirements by direct correspondence with the secretaries of the specialty boards.

Statistical Data: The statistical data have been obtained from annual reports covering the calendar year 1937. In a few instances earlier reports have been consulted. In most cases, this information is supplemented in the Council's files by inspection reports and by comments received from residents who have completed the listed service. The data should be examined with the following considerations in mind:

Chief of Service: It is required that there be an organized and qualified staff in the department offering residencies. The names listed are those most recently reported as departmental chairmen. In university hospitals, professors usually are given. Blank spaces indicate recent unconfirmed changes or supervision is supplied by chiefs on parallel or rotating assignments. For personal data see list of physicians in state sections.

Inpatients: The figures refer to total inpatients treated in the specialty. Exceptions are in anesthesia, radiology and pathology where total hospital admissions are used. In obstetrics, some hospitals include new-borns, others do not.

Per Cent Free: An index to charity work performed, although in every instance the majority of patients are available for instruction.

Outpatients: Where available, the service is nearly always required.

Residencies, Assistant Residencies and Length of Appointment: Information supplied indicates whether progressive services are available and over what period of time. The eldest in point of service is the resident and others assistant residents whether so designated by the hospital or not. Senior internships in specialties are classed as assistant residencies.

Salary: It is advisable to confirm the quoted figure when applying. Unless otherwise indicated, compensation includes room and board. In fellowships, the hospital usually supplies maintenance only; the stipend is provided from other sources.

Deaths and Autopsies: These are reported for the specialties. In anesthesia, pathology and radiology, figures are given for the entire hospital. Some obstetrical services include new-born deaths and autopsies.

Important: All hospitals approved for residencies submit names of residents to the office of the Council for permanent credit and registration. It is in the interest of every house officer to assure himself that his name is properly recorded and that the correct dates of all appointments are submitted.

INDEX TO LIST

	Page
1. Internal medicine	
a. General medicine	832
b. Cardiology	834
c. Communicable diseases	834
d. Tuberculosis	834
e. Malignant diseases	835
f. Mixed residency	835
2. Pediatrics	835
3. Psychiatry and neurology	
a. Neurology	837
b. Psychiatry	837
c. Epilepsy	838
d. Mental deficiencies	838
4. Dermatology and syphilology	838
5. Obstetrics and gynecology	
a. Gynecology	838
b. Obstetrics	838
c. Obstetrics-gynecology	839
6. Surgery	
a. General surgery	840
b. Neurosurgery	842
c. Thoracic surgery	842
d. Industrial surgery	842
e. Fractures	842
f. Plastic surgery	842
g. Anesthesia	842
7. Orthopedic surgery	842
8. Urology	843
9. Ophthalmology	844
10. Otolaryngology	844
a. Ophthalmology-otolaryngology	845
11. Pathology	845
12. Radiology	847
Physical therapy	847

1. INTERNAL MEDICINE

a. GENERAL MEDICINE

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Hillman Hospital	Birmingham, Ala.	J. S. McLester and H. R. Carter	2,047	100	Yes	$60	1	0	7/1	12	495	99
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company	Fairfield, Ala.	G. F. Walsh	1,783	..	Yes	$100	1	0	7/1	12	147	36
Fresno County General Hospital	Fresno, Calif.	R. B. Tupper and W. E. Schottstaedt	2,378	99	Yes	$65	3	0	7/1	12	451	114
Cedars of Lebanon Hospital	Los Angeles	H. Wiggins	1,380	18	Yes	$75	1	0	7/1	12	140	45
Los Angeles County Hospital	Los Angeles	B. O. Raulston	10,633	100	Yes	$10	6	0	4/1	36	1,837	742
White Memorial Hospital	Los Angeles	D. D. Comstock	639	2	Yes	$90	1	0	7/1	36	50	21
Alameda County Hospital	Oakland, Calif.	R. T. Sutherland and H. G. MacLean	3,884	100	No	$40	1	2	7/1	12	534	164
San Bernardino County Charity Hosp.	San Bernardino, Calif.	H. Gentry	429	100	Yes	$75	2	0	7/1	12	75	33
San Diego County General Hospital	San Diego, Calif.	E. M. Fetter	3,797	100	Yes	$75	2	0	7/1	12	...	...
Hospital for Children	San Francisco	D. Atkinson	464	4	Yes	$25	1	0	7/1	12	22	6
Mount Zion Hospital	San Francisco	L. H. Briggs	1,205	16	Yes	$50	1	0	6/15	12	116	56
St. Luke's Hospital	San Francisco	H. P. Hill	1,215	8	Yes	$75	1	0	7/1	12	119	32
San Francisco Hospital	San Francisco	L. H. Briggs and G. D. Barnett	2,895	100	No	[a]	3	3	7/1	12	...	...
Stanford University Hospitals	San Francisco	A. Bloomfield	1,888	3	Yes	$25	1	5	7/1	12	106	49
University of California Hospital	San Francisco	W. J. Kerr	1,202	64	Yes	$25	1	5	7/1	12	93	65
Santa Clara County Hospital [2]	San Jose, Calif.	G. Grey	3,383	100	Yes	$75	1	0	7/1	12	...	...
Colorado General Hospital [20]	Denver	K. K. Waring	709	61	Yes	$75	1	0	7/1	12	127	96
Denver General Hospital	Denver		1,418	100	No	$50	1	0	7/1	12	...	...
Grace Hospital	New Haven, Conn.	S. J. Goldberg	986	10	Yes	$90	1	0	7/1	12	169	42
New Haven Hospital	New Haven, Conn.	F. G. Blake	1,250	34	Yes	$40	1	1	1/1&7/1	12	207	119
Central Disp. and Emergency Hosp.	Washington, D. C.	H. M. Kaufman	2,287	17	Yes	$50	1	1	6/15	24	...	...
Freedmen's Hospital (col.)	Washington, D. C.	R. L. Gregory	743	85	Yes	[a]	1	0	7/1	12	133	35

Numerical and other references will be found on page 847.

1. INTERNAL MEDICINE—(Continued)

a. GENERAL MEDICINE (Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Gallinger Municipal Hospital	Washington, D. C.	W. M. Yater	2,574	99	No	$30	2	6	7/1	12	548	170
Garfield Memorial Hospital	Washington, D. C.	B. F. Weems	4,592	..	Yes	$50	1	0	7/1	12	147	37
Grady Hospital	Atlanta, Ga.	C. W. Strickler and R. H. Oppenheimer	3,085	100	Yes	$50	2	2	6/20	12	568	244
University Hospital	Augusta, Ga.	V. P. Sydenstricker	1,952	44	Yes	$45	1	2	7/1	12	281	77
Cook County Hospital	Chicago	C. C. Maher	18,290	100	No	$25	5	0	1/1&7/1	12	3,903	623
Passavant Memorial Hospital	Chicago	C. A. Elliott	1,341	7	Yes	None	3	0	1/1	12	67	38
Presbyterian Hospital	Chicago	E. E. Irons	3,662	22	Yes	$50	1	0	9/1	24	116	70
Provident Hospital (col.)	Chicago	J. L. Hall	585	63	Yes	$50	1	0	9/1	12	100	22
Research and Educational Hospital [2]	Chicago	R. W. Keeton	728	100	Yes	$50	2	0	7/1	24	59	53
St. Luke's Hospital	Chicago	.....	1,638	6	Yes	None	2	0	7/1	12	83	38
University of Chicago Clinics	Chicago	G. F. Dick	2,022	38	Yes	None	1	4	1/1&7/1	12	86	61
Wesley Memorial Hospital [2]	Chicago	W. H. Holmes	310	23	Yes	$75	1	0	1/1	12	28	20
Evanston Hospital	Evanston, Ill.	J. G. Carr	2,731	10	Yes	$83	1	0	1/1	24	100	74
Indianapolis City Hospital	Indianapolis	R. M. Moore	1,869	88	Yes	$42	2	0	7/1	12	419	171
Indiana University Hospitals	Indianapolis	J. O. Ritchey	1,040	82	Yes	$33	1	1	7/1	12	88	53
University Hospitals	Iowa City	F. M. Smith	2,204	86	Yes	$20	1	4	7/1	36	110	72
University of Kansas Hospital	Kansas City, Kan.	R. H. Major	1,113	66	Yes	$50	1	2	7/1	36	84	70
Louisville City Hospital	Louisville, Ky.	J. W. Moore	1,157	90	Yes	$14	1	7	7/1	36	484	98
Charity Hospital	New Orleans	G. S. Bel and J. H. Musser	3,018	100	Yes	$25	2	6	7/1	36	571	345
Touro Infirmary	New Orleans	C. L. Eshelman	1,286	35	Yes	$25	2	0	7/1	12	...	...
Baltimore City Hospitals	Baltimore	T. R. Boggs	2,497	99	Yes	$17	1	5	7/1	24	481	214
Church Home and Infirmary	Baltimore	T. R. Boggs	395	25	Yes	$25	1	0	7/1	12	49	20
Johns Hopkins Hospital	Baltimore	W. T. Longcope	3,341	43	Yes	None	1	6	7/1&9/1	12-60	232	155
Maryland General Hospital	Baltimore	E. B. Freeman	575	35	Yes	$35	1	0	7/1	12	104	18
Mercy Hospital	Baltimore	M. C. Pincoffs	836	60	Yes	$25	1	1	7/1	24	110	25
Provident Hospital and Free Dispensary (col.)	Baltimore	T. Sprunt	287	73	Yes	$25	1	1	10/15	12	84	14
St. Agnes' Hospital	Baltimore	J. T. O'Mara	951	32	Yes	None	1	0	7/1	12	126	25
St. Joseph's Hospital	Baltimore	C. Smink and H. M. Stein	741	28	Yes	None	1	1	7/1	24	124	32
Sinai Hospital	Baltimore	C. R. Austrian	1,189	37	Yes	$50	1	2	7/1	12	157	42
South Baltimore General Hospital	Baltimore	G. McLean	855	46	Yes	$50	1	0	7/1	12	55	20
Union Memorial Hospital	Baltimore	W. A. Baetjer	1,163	16	Yes	$12	1	2	7/1	12	109	44
University Hospital	Baltimore	M. C. Pincoffs	1,378	47	Yes	None	1	2	7/1	24	164	86
West Baltimore General Hospital	Baltimore	J. N. Zierler	434	36	No	$20	1	0	7/1	12	59	9
Beth Israel Hospital	Boston	H. Linenthal	1,669	39	Yes	$79	1	0	7/1	12	155	80
Boston City Hospital [7]	Boston	G. R. Minot	10,385	94	Yes	[a]	10	1	Varies	12	1,260	485
Joseph H. Pratt Diagnostic Hospital	Boston	S. H. Proger	736	..	Yes	$42	1	0	7/1	12	8	4
Massachusetts General Hospital	Boston	J. H. Means	1,753	44	Yes	$42	1	5	9/1	24	154	74
Massachusetts Memorial Hospitals, Robert Dawson Evans Department of Clinical Research and Preventive Medicine	Boston	R. Fitz	429	31	Yes	$91	4	0	7/1	36	...	...
Peter Bent Brigham Hospital	Boston	H. A. Christian	2,061	46	Yes	$42	1	6	Varies	24	233	139
University Hospital	Ann Arbor, Mich.	C. C. Sturgis	3,911	81	Yes	$25	7	8	7/1	36	204	120
Alexander Blain Hospital	Detroit	R. L. Fisher	168	..	Yes	$75	1	0	7/1	12	8	4
City of Detroit Receiving Hospital	Detroit	G. B. Myers	4,258	100	Yes	$50	1	5	7/15	24	916	373
Grace Hospital	Detroit	J. T. Watkins	2,478	27	Yes	$50	1	1	9/1	12	362	89
Harper Hospital	Detroit	H. A. Freund	2,618	12	Yes	$25	1	6	7/1	36	...	...
Henry Ford Hospital	Detroit	F. J. Sladen	.....	..	Yes	$130	1	4	9/1	12	73	33
Providence Hospital	Detroit	M. Auble	1,504	10	No	$100	1	0	7/1	12	247	34
Eloise Hospital (Dr. Wm. J. Seymour Hospital)	Eloise, Mich.	N. Sandler	2,270	98	Yes	$100	1	1	7/1	12	597	155
Hurley Hospital	Flint, Mich.	M. S. Chambers	1,851	60	No	$100	1	0	7/1	12	268	72
Minneapolis General Hospital [1]	Minneapolis	G. Fahr	2,061	85	Yes	$25	6	0	1/1&7/1	36	387	187
University Hospitals [1]	Minneapolis	J. C. McKinley	1,054	12	Yes	$50	4	0	1/1&7/1	36	143	100
Ancker Hospital	St. Paul	A. R. Hall and A. Hoff	2,768	98	Yes	$50	6	0	7/1	12	291	215
St. Louis County Hospital	Clayton, Mo.	H. Liggett	923	98	Yes	$50	1	1	7/1	12	197	88
Barnes Hospital [2]	St. Louis	D. P. Barr	3,435	17	Yes	$25	1	3	7/1	24	151	95
De Paul Hospital	St. Louis	E. P. Buddy	1,121	22	....	$25	1	1	7/1	24	185	33
Homer G. Phillips Hospital for Colored	St. Louis	D. Sexton	993	100	Yes	$75	1	1	7/1	36	250	66
Jewish Hospital	St. Louis	L. Sale	1,866	25	Yes	$42	1	1	7/1	12	145	34
St. Louis City Hospital	St. Louis	.....	4,469	100	Yes	$75	3	6	7/1	36	929	419
St. Luke's Hospital	St. Louis	E. N. Neber	1,259	16	Yes	$75	1	0	7/1	12	89	47
St. Mary's Group of Hospitals	St. Louis	R. A. Kinsella	2,789	42	Yes	$25	7	0	7/1	34	187	85
Jersey City Hospital	Jersey City, N. J.	T. White	4,172	90	Yes	$100	2	1	1/1&7/1	12	746	104
Albany Hospital	Albany, N. Y.	L. W. Gorham	1,479	2	Yes	$25	1	1	7/1	36	139	106
Coney Island Hospital	Brooklyn	P. I. Nash	1,763	100	Yes	$100	1	0	7/1	12	318	108
Cumberland Hospital	Brooklyn	H. Joachim	881	100	Yes	$100	1	0	7/1	12	170	64
Kings County Hospital	Brooklyn	J. Crawford and H. Moses	14,534	100	Yes	$15	4	4	1/1&7/1	12	2,912	470
Long Island College Hospital	Brooklyn	T. Howard	1,447	7	Yes	$22	1	1	7/1	12	136	35
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn	.....	653	17	Yes	None	1	0	7/1	12	119	41
Buffalo City Hospital	Buffalo	C. Roberts	2,319	65	Yes	$68	1	2	7/1	48	390	196
Buffalo General Hospital	Buffalo	A. H. Aaron	2,576	3	Yes	$25	1	6	7/1	12	340	128
Millard Fillmore Hospital	Buffalo	J. Mesmer	1,085	17	Yes	$25	1	0	7/1	12	131	38
Queens General Hospital	Jamaica, N. Y.	C. Boettiger	2,380	100	Yes	$15	1	1	7/1	12	408	218
Charles S. Wilson Memorial Hospital [2]	Johnson City, N. Y.	R. J. McMahon	949	1	Yes	$75	1	0	7/1	12	71	37
Metropolitan Life Insurance Co. Sanit.	Mt. McGregor, N. Y.	W. H. Ordway	311	100	No	$150	2	0	Varies	12	3	0
Bellevue Hospital [2]	New York City	.....	11,453	100	Yes	...	3	8	1/1&7/1	12	...	...
Flower-Fifth Avenue Hospital	New York City	L. J. Boyd	1,440	5	Yes	$50	1	0	7/1	12	94	23
Metropolitan Hospital	New York City	L. J. Boyd	2,242	100	Yes	$100	2	0	7/1	12	439	69
Montefiore Hosp. for Chronic Diseases	New York City	L. Lichtwitz	546	88	Yes	$50	1	3	1/1&7/1	12	103	80
Mount Sinai Hospital [18]	New York City	G. Baehr and B. S. Oppenheimer	.....	55	Yes	$125	1	1	1/1&7/1	12	268	199
New York Hospital	New York City	E. F. DuBois	1,697	23	Yes	None	1	7	7/1	60	147	101
N. Y. Post-Graduate Medical School and Hospital	New York City	W. G. Lough	1,521	13	Yes	$90	1	0	7/1	12	99	30
Presbyterian Hospital	New York City	W. W. Palmer	3,861	30	Yes	$42	1	3	7/1	12	...	...
Genesee Hospital	Rochester, N. Y.	D. B. Jewett	1,185	14	Yes	$75	1	0	7/1	12	121	38
Rochester General Hospital	Rochester, N. Y.	D. A. Haller	1,583	21	Yes	$50	1	1	7/1	12	148	77
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	W. S. McCann	3,623	63	Yes	$42	1	5	7/1	12	380	247
Hospital of the Good Shepherd	Syracuse, N. Y.	E. C. Reifenstein	1,364	2	No	$83	1	1	7/1	12	150	50
Grasslands Hospital	Valhalla, N. Y.	M. Touart	897	86	Yes	$75	1	1	1/1&7/1	24	162	124
Duke Hospital	Durham, N. C.	F. M. Hanes	4,237	56	Yes	$42	1	0	7/1	48	125	89

Numerical and other references will be found on page 847.

1. INTERNAL MEDICINE—(Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
a. GENERAL MEDICINE (Continued)												
Watts Hospital	Durham, N. C.	W. R. Stanford	1,610	23	Yes	$50	1	0	7/1	12	99	23
City Memorial Hospital	Winston-Salem, N. C.	S. F. Pfohl	699	39	Yes	$50	1	1	7/1	12	116	33
City Hospital [8]	Akron, O.	B. B. Grossman	1,503	30	Yes	$55	1	0	7/1	12	217	92
Cincinnati General Hospital	Cincinnati	M. B. Blankenhorn	2,440	87	Yes	[a]	1	13	7/1	60	707	418
Deaconess Hospital	Cincinnati	F. C. Thiess	779	5	No	$75	1	0	7/1	12	108	23
Good Samaritan Hospital	Cincinnati	G. Topmoeller	6,562	5	Yes	$35	2	0	7/1	12	215	73
Jewish Hospital [8]	Cincinnati	W. Stix	1,577	20	Yes	$45	2	0	7/1	12	137	28
City Hospital	Cleveland	R. W. Scott	2,319	97	Yes	$42	1	4	7/1	12	649	300
Mount Sinai Hospital	Cleveland	S. S. Berger	1,469	20	Yes	$60	1	0	7/1	12	145	35
St. Alexis Hospital	Cleveland	H. B. Paryzek	1,216	23	Yes	$60	1	0	7/1	12	187	57
St. John's Hospital	Cleveland	R. K. Updegraff, Sr.	1,289	18	No	$25	1	0	7/1	12	117	33
St. Luke's Hospital	Cleveland	W. C. Stoner	2,468	18	Yes	$25	1	2	7/1	24	217	67
University Hospitals	Cleveland	J. T. Wearn	3,338	35	Yes	$25	1	10	7/1	36	316	204
Starling-Loving University Hospital	Columbus, O.	C. A. Doan	933	58	Yes	$25	2	2	7/1	36	104	50
Miami Valley Hospital	Dayton, O.	B. Olch	2,830	23	No	$75	1	0	7/1	12	280	105
Huron Road Hospital	East Cleveland, O.	A. B. Schneider	960	2	Yes	$50	1	0	7/1	12	104	39
St. Elizabeth's Hospital	Youngstown, O.	A. M. Rosenblum	1,564	3	No	$50	1	0	7/1	12	229	34
State University and Crippled Children's Hospitals	Oklahoma City	G. LaMotte	990	71	Yes	$50	2	0	7/1	12	125	66
University of Oregon Medical School Hospitals	Portland	L. Selling	1,692	100	Yes	$30	1	2	7/1	36	411	200
Abington Memorial Hospital	Abington, Pa.	G. M. Piersol and G. H. Wells	1,313	25	Yes	None	1	0	7/1	12	117	56
George F. Geisinger Memorial Hospital	Danville, Pa.	W. J. Stainsby	1,400	27	Yes	$50	1	0	9/1	12	95	37
Germantown Dispensary and Hospital	Philadelphia		822	20	Yes	$110	1	0	7/1	12	155	57
Graduate Hospital of the University of Pennsylvania	Philadelphia	G. M. Piersol	1,165	33	Yes	None	1	0	7/1	12	90	43
Hosp. of the University of Pennsylvania	Philadelphia	O. H. Pepper	3,505	28	Yes	None	1	0	7/1	12	148	98
Jewish Hospital	Philadelphia		1,297	31	No	None	1	0	6/15	12	194	87
Pennsylvania Hospital [1]	Philadelphia	D. L. Farley and G. G. Duncan	1,439	28	Yes	$20	2	0	7/1	12	235	116
Temple University Hospital	Philadelphia	C. L. Brown	1,096	38	Yes	$40	2	0	7/1	36	122	58
Allegheny General Hospital	Pittsburgh	E. W. Willetts	1,385	54	Yes	$85	1	0	9/1	12	240	57
Elizabeth Steel Magee Hospital [1]	Pittsburgh	J. D. Heard	923	39	Yes	$83	1	0	9/1	12	57	25
Mercy Hospital [1]	Pittsburgh	W. W. G. MacLachlan	2,343	35	Yes	$112	1	0	7/1	12	106	80
St. Francis Hospital	Pittsburgh		1,268	14	Yes	$75	1	0	9/1	12	215	32
Reading Hospital	Reading, Pa.	W. S. Bertolet	900	42	Yes	$83	1	0	7/1	12	163	94
Robert Packer Hospital	Sayre, Pa.	S. D. Conklin	2,838	50	No	$75[c]	1	0	9/1	12	161	71
Roper Hospital	Charleston, S. C.	R. Wilson	1,653	71	Yes	$40	1	0	7/1	12	315	117
John Gaston Hospital	Memphis, Tenn.	J. B. McElroy	2,309	97	Yes	$32	1	1	7/1	12	506	89
Nashville General Hospital	Nashville, Tenn.	J. O. Manier	1,042	90	Yes	$35	1	1	7/1	24	196	72
Vanderbilt University Hospital	Nashville, Tenn.	H. J. Morgan	1,305	29	Yes	$35	1	3	7/1	12	97	64
Baylor University Hospital	Dallas, Tex.	H. M. Winans	2,702	20	Yes	$50	1	2	7/1	12	163	55
Parkland Hospital	Dallas, Tex.	W. G. Reddick	1,625	91	Yes	$10	2	2	1/1&7/1	12	...	...
John Sealy Hospital	Galveston, Tex.	C. T. Stone	1,228	50	Yes	$50	1	0	7/1	12	169	92
Norfolk General Hospital	Norfolk, Va.		3,556	26	Yes	$50	1	0	7/1	12	148	57
Medical College of Virginia, Hospital Division	Richmond	W. B. Porter	1,655	5	Yes	$50	2	3	7/1	12	318	133
University of Virginia Hospital	University	J. C. Flippin	1,761	30	Yes	[a]	1	1	7/1	24	148	70
State of Wisconsin General Hospital	Madison	W. S. Middleton	.....	85	Yes	$25	3	0	7/1	36	...	...
St. Joseph's Hospital	Milwaukee	F. D. Murphy	1,758	13	....	$40	1	0	7/1	12	199	40
Milwaukee County Hospital	Wauwatosa, Wis.	T. J. Howard	5,038	97	Yes	$100	3	0	7/16	12	643	293
b. CARDIOLOGY												
Indiana University Hospitals	Indianapolis	G. S. Bond	.....	82	Yes	$83	1	0	7/1	12	...	...
Pennsylvania Hospital	Philadelphia	W. D. Stroud	.....	28	Yes	$33	1	0	7/1	12	...	...
St. Francis Hospital [2]	Pittsburgh	A. P. D'Zmura	292	14	Yes	$50	1	0	7/1	12	...	...
Rhode Island Hospital	Providence	F. T. Fulton	.....	39	Yes	$50	1	0	7/1	12	...	...
c. COMMUNICABLE DISEASES												
Los Angeles County Hospital	Los Angeles	P. Hamilton	3,204	100	....	$175	3	0	Varies	12	309	136
Hospital for Children	San Francisco	E. B. Shaw	221	4	....	$50	1	0	7/1	12	16	5
Municipal Hospitals	Hartford, Conn.	C. L. Thenebe	601	100	....	$125	1	0	7/1	24	...	...
Municipal Contagious Disease Hospital [2]	Chicago	A. L. Hoyne	3,698	100	....	$100	8	0	Varies	12	189	142
Boston City Hospital	Boston	E. H. Place	1,427	94	....	$125	2	0	Varies	12	35	10
Belmont Hospital	Worcester, Mass.	F. H. Nolton	352	100	....	$133	1	0	Varies	12	13	3
Herman Kiefer Hospital	Detroit	D. C. Young	5,021	97	....	$125	7	0	7/1	12	188	97
Kansas City General Hospital	Kansas City, Mo.	C. Ferris and W. L. McBride	634	100	....	$40	1	0	7/1	12	60	55
City Isolation Hospital	St. Louis	H. J. Ulrich	1,678	93	....	$75	1	0	7/1	12	105	23
Essex County Hospital for Contagious Diseases	Belleville, N. J.	E. L. Smith	3,475	95	....	$50	2	0	1/1&7/1	12	105	35
Kingston Avenue Hospital	Brooklyn	M. B. Gordon	2,807	100	....	$100	7	0	1/1&7/1	12	92	26
Queens General Hospital	Jamaica, N. Y.	W. C. A. Steffen	654	100	....	$100	2	0	7/1	12	20	15
Willard Parker Hospital	New York City	B. W. Hamilton	5,453	100	....	$100	7	0	1/1&7/1	12	81	42
City Hospital	Cleveland	H. J. Gerstenberger	2,194	97	....	$42	1	1	7/1	12	134	67
d. TUBERCULOSIS												
Arroyo Sanatorium	Livermore, Calif.	C. Bush	395	100	Yes	$85	1	0	7/1	12	12	4
Barlow Sanatorium	Los Angeles	H. W. Bosworth	158	6	Yes	$100	1	0	Varies	12	2	2
Los Angeles County Hospital	Los Angeles	C. Howson	1,223	100	Yes	$175	2	0	Varies	36	332	97
Pottenger Sanatorium and Clinic	Monrovia, Calif.	F. M. Pottenger	110	..	Yes	$50	1	0	7/1	12	22	7
Olive View Sanatorium	Olive View, Calif.	E. S. Bennett	1,710	82	No	$75	2	0	Varies	12	85	40
San Francisco Hospital	San Francisco	E. Rosencrantz	715	100	Yes	[a]	2	2	7/1	12	...	...
Santa Clara County Hospital	San Jose, Calif.	C. Ianne	216	100	Yes	$150	1	1	7/1	12	...	...
Fairmont Hospital of Alameda County	San Leandro, Calif.	H. G. Trimble	196	100	No	$175	1	0	7/1	12	100	54
Union Printers' Home and Tuberculosis Sanatorium	Colorado Springs	G. B. Webb	138	100	No	...	2	1	Varies	24	16	2
Denver General Hospital	Denver	C. L. Lincoln	170	100	Yes	$50	1	0	7/1	12	...	...
National Jewish Hospital	Denver	C. J. Kaufman	445	100	Yes	$100	5	1	Varies	12	32	18
Sanatorium of the Jewish Consumptives' Relief Society	Spivak, Colo.	A. Rest	366	100	Yes	$100	5	0	Varies	36	30	8
Norwich State Tuberculosis Sanat. (Uncas-on-Thames)	Norwich, Conn.	H. B. Campbell	600	..	Yes	$175	3	0	Varies	24	74	26
Gaylord Farm Sanatorium	Wallingford, Conn.	D. R. Lyman	383	6	Yes	$100	1	0	Varies	36	3	1
Macon County Tuberculosis Sanatorium	Decatur, Ill.	D. O. N. Lindberg	68	77	Yes	$100	1	0	1/1	12	1	1
Peoria Municipal Tuberculosis Sanit.	Peoria, Ill.	M. Pollak	265	99	Yes	$100	2	0	Varies	12	16	10
Rockford Municipal Tuberculosis Sanat.	Rockford, Ill.	W. J. Bryan	114	100	Yes	$100	1	0	7/1	24	16	4
Boehne Tuberculosis Hospital [22]	Evansville, Ind.	P. D. Crimm	621	38	Yes	$50	1	1	Varies	36	37	37

Numerical and other refcrences will be found on page 847.

1. INTERNAL MEDICINE—(Continued)

	Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
d. TUBERCULOSIS (Continued)											
Western Maine Sanatorium	Greenwood Mountain.. L. Adams	161	..	Yes	$35	1	0	Varies	24	15	5
Baltimore City Hospitals	Baltimore H. M. Stein	491	99	No	$17	1	1	7/1	24	152	83
Sanatorium Division of Boston City Hospital	Boston J. A. Foley	1,088	100	No	$100	4	4	Varies	12	196	49
North Reading State Sanatorium [19]	North Wilmington, Mass. C. B. MacCorison	460	..	Yes	$150	1	0	Varies	12	10	0
Rutland State Sanatorium	Rutland, Mass. E. B. Emerson	367	..	Yes	$75	1	0	Varies	12	48	11
Plymouth County Hospital	South Hanson, Mass.. B. H. Peirce	199	..	Yes	$100	1	0	Varies	12	32	17
Middlesex County Sanatorium	Waltham, Mass. S. H. Remick	639	..	Yes	$150	2	0	Varies	12	74	33
Belmont Hospital	Worcester, Mass. R. H. Baker	290	100	Yes	$133	4	0	Varies	24	53	28
University Hospital	Ann Arbor, Mich. J. Barnwell	.....	81	Yes	$25	1	0	7/1	36	14	4
American Legion Hospital	Battle Creek, Mich. E. J. O'Brien and W. L. Howard	398	100	No	$125	3	0	Varies	12	54	7
Herman Kiefer Hospital	Detroit B. H. Douglas	1,521	97	Yes	$150	11	0	Varies	12	339	39
Michigan State Sanatorium	Howell, Mich. G. L. Leslie	704	100	Yes	$125	2	0	7/1	12	39	13
Morgan Heights Sanatorium	Marquette, Mich. R. F. Berry	173	94	Yes	$150	1	0	1/1	12	26	7
William H. Maybury Sanatorium	Northville, Mich. H. S. Willis	1,481	100	No	$150	6	0	Varies	36	100	51
Oakland County Tuberculosis Sanat.	Pontiac, Mich. G. A. Sherman	240	61	Yes	$150	3	0	7/1	36	54	23
Nopeming Sanatorium	Nopeming, Minn. A. T. Laird	433	89	Yes	$150	2	0	1/1&7/1	12	25	16
Glen Lake Sanatorium	Oak Terrace, Minn. E. S. Mariette	1,218	93	No	$10	1	0	7/1	12	118	78
City Isolation Hospital	St. Louis H. J. Ulrich	187	93	....	$150	1	0	7/1	12	25	8
Mount St. Rose Sanatorium	St. Louis L. C. Boisliniere	345	52	No	$125	1	0	7/1	12	51	30
Robert Koch Hospital	St. Louis G. D. Kettelkamp	758	100	No	$150	6	0	7/1	12	73	45
New Jersey State Sanatorium	Glen Gardner S. B. English	891	100	Yes	$166	4	0	Varies	36	11	4
Jersey City Hospital	Jersey City, N. J. B. S. Pollak	377	90	Yes	$100	3	1	1/1&7/1	12	63	18
Hudson County Tuberculosis Hospital and Sanatorium	Secaucus, N. J. B. P. Potter	210	100	Yes	$100	2	2	Varies	36	68	21
United States Marine Hospital	Fort Stanton, N. M. R. E. Porter	186	100	Yes	$167	2	0	Varies	12	23	16
Albany Hospital	Albany, N. Y. R. J. Erickson	204	2	Yes	$50	2	0	7/1	12	44	36
Montefiore Hospital Country Sanat.	Bedford Hills, N. Y. A. Shamaskin	509	97	No	$100	3	0	1/1&7/1	12	0	0
Kings County Hospital	Brooklyn C. Hamilton	1,019	100	Yes	$100	1	2	1/1&7/1	12	...	...
Kingston Avenue Hospital	Brooklyn F. Murray	224	100	No	$100	1	0	1/1&7/1	12	11	7
Buffalo City Hospital	Buffalo	329	65	Yes	...	1	1	7/1	..	183	56
Loomis Sanatorium	Loomis, N. Y. C. D. Parfitt	313	3	No	$125	3	0	Varies	12	24	1
Metropolitan Life Insurance Company Sanatorium	Mt. McGregor, N. Y. W. H. Ordway	174	100	No	$150	2	0	Varies	12	2	1
Bellevue Hospital [2]	New York City J. A. Miller	2,359	100	Yes	$70	1	6	1/1&7/1	24	...	...
Lenox Hill Hospital	New York City G. Thorburn	237	24	Yes	$50	1	0	7/1	12	11	6
Metropolitan Hospital	New York City G. G. Ornstein	668	100	Yes	$100	1	6	7/1	12	241	28
Montefiore Hosp. for Chronic Diseases	New York City H. Wessler	489	88	Yes	$100	1	2	1/1&7/1	12	89	67
Homer Folks Tuberculosis Hospital	Oneonta, N. Y. R. Horton	461	90	Yes	$100	2	2	7/1&10/1	36	32	8
Municipal Sanatorium	Otisville, N. Y. A. Kane	978	97	....	$120	7	0	1/1&7/1	12	4	0
Iola-Monroe County Tuberculosis Sanat.	Rochester, N. Y. E. Bridge	947	92	Yes	$100	4	0	7/1	48	89	46
Sea View Hospital	Staten Island, N. Y. G. G. Ornstein	2,784	100	Yes	$100	16	0	1/1&7/1	12	321	130
Trudeau Sanatorium	Trudeau, N. Y. F. H. Heise	440	3	No	None	2	0	Varies	12	3	0
Grasslands Hospital	Valhalla, N. Y. J. M. Nicklas	698	86	Yes	$117	3	3	1/1&7/1	36	64	41
Jefferson County Sanatorium	Watertown, N. Y. S. E. Simpson	171	80	Yes	$100	1	0	7/1	36	16	8
State Tuberculosis Sanatorium	San Haven, N. D. G. A. Dodds	471	90	Yes	$75	1	0	7/1	12	42	12
Hamilton County Tuberculosis Sanat.	Cincinnati H. K. Dunham	1,271	95	Yes	...	3	0	7/1	12	188	100
City Hospital	Cleveland J. C. Placak	969	97	Yes	$42	2	0	7/1	12	201	66
Sunny Acres, Cleveland Tuberculosis Sanatorium	Warrensville, O. R. H. Browning	909	100	Yes	$167	3	3	7/1	12	15	8
Eagleville Sanatorium for Consumptives	Eagleville, Pa. A. J. Cohen	370	44	Yes	$125	2	0	Varies	36	...	...
Germantown Dispensary and Hospital	Philadelphia F. M. McPhedran	62	20	Yes	$130	1	0	7/1	12	8	5
White Haven Sanatorium	White Haven, Pa. F. A. Craig	321	7	No	$50	5	0	Varies	36	85	60
State Sanatorium	Wallum Lake, R. I.	716	87	Yes	$150	7	0	Varies	12	69	38
Pine Breeze Sanatorium	Chattanooga, Tenn. J. L. Hamilton	478	87	Yes	$125	1	0	12/1	12	56	9
Davidson County Tuberculosis Hospital	Nashville, Tenn. R. R. Crowe	571	85	Yes	$150	1	0	7/1	12	66	18
Hopemont Sanitarium	Hopemont, W. Va. A. V. Cadden	673	..	Yes	$165	5	0	7/1	12	39	20
Wisconsin State Sanatorium	Statesan H. M. Coon	110	92	No	$200	2	0	Varies	36	15	10
e. MALIGNANT DISEASES											
Los Angeles County Hospital	Los Angeles H. P. Jacobson	944	100	Yes	$10	2	0	10/1	12	171	82
Albert Steiner Clinic for Cancer and Allied Diseases	Atlanta, Ga. R. H. Fike	468	100	Yes	$75	1	1	7/1	24	37	21
Michael Reese Hospital [2]	Chicago M. Cutler	270	41	Yes	None	2	0	1/1&7/1	12	...	...
Collis P. Huntington Memorial Hosp. [1]	Boston C. C. Simmons	1,411	20	Yes	[a]	1	1	Varies	..	14	8
Pondville Hospital at Norfolk	Wrentham, Mass. E. M. Daland	1,450	45	Yes	$150	7	0	Varies	12	264	213
Eloise Hospital (Dr. Wm. J. Seymour Hospital)	Eloise, Mich. R. Katsuki	456	98	Yes	$110	1	0	9/1	12	179	79
Barnard Free Skin and Cancer Hosp. [5]	St. Louis F. J. Taussig	887	100	Yes	$25	3	0	7/1	12	38	12
Jersey City Hospital	Jersey City, N. J. H. Martin and J. Faison	326	90	Yes	$100	1	0	1/1	12	31	4
Brooklyn Cancer Institute of Kings County Hospital	Brooklyn W. E. Howes	781	100	Yes	$50	2	2	1/1&7/1	24	160	41
Memorial Hospital for the Treatment of Cancer and Allied Diseases	New York City J. Ewing	2,702	3	Yes	$125	10	0	1/1&7/1	36	116	51
New York City Cancer Institute Hosp.	New York City I. I. Kaplan	1,038	...	Yes	$70	4	4	1/1&7/1	16	520	116
Jeanes Hospital	Philadelphia R. W. Teahan	589	40	Yes	$50	2	0	7/1	12	90	55
f. MIXED [3]											
St. Vincent's Hospital	Birmingham, Ala. S. L. Ledbetter	3,744	3	No	$75	3	0	7/1	12	126	22
Fairmont Hospital of Alameda County	San Leandro, Calif.	1,789	100	No	$155	1	0	7/1	12	351	147
Riverside Hospital	Jacksonville, Fla.	1,190	10	Yes	$50	1	0	7/1	12	31	10
Eitel Hospital	Minneapolis	5,648	5	Yes	$100	2	0	7/1	12	104	39
Chesapeake and Ohio Railway Hospital	Clifton Forge, Va. J. M. Emmett	3,113	55	Yes	$50	2	0	7/1	12	93	20
McMillan Hospital	Charleston, W. Va.	2,315	10	....	$50	2	0	7/1	12	84	13

2. PEDIATRICS

Children's Hospital	Birmingham, Ala. A. A. Walker	977	86	Yes	$50	1	0	7/1	12	56	15
Hillman Hospital	Birmingham, Ala. A. A. Walker	1,397	100	Yes	$40	1	0	7/1	12	98	41
California Babies Hospital	Los Angeles R. P. Deakers	544	40	Yes	$100	1	0	7/1	12	6	3
Children's Hospital	Los Angeles H. Dietrich	2,650	45	Yes	$40	1	8	7/1	12	168	138
Los Angeles County Hospital	Los Angeles O. Reiss	2,744	100	Yes	$10	2	0	4/1	24	196	99
White Memorial Hospital	Los Angeles A. L. Hill	230	2	Yes	$90	1	0	7/1	36	14	10
Children's Hospital of the East Bay	Oakland, Calif. C. D. Sweet	1,187	2	Yes	$25	1	1	7/1	12	21	12
Hospital for Children	San Francisco C. F. Gelston	446	4	Yes	$25	1	0	7/1	12	20	9

Numerical and other references will be found on page 847.

2. PEDIATRICS—(Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
San Francisco Hospital	San Francisco	W. A. Riley and R. P. Seitz	2,577	100	No	[a]	1	1	7/1	12	...	...
Stanford University Hospitals	San Francisco	H. K. Faber	1,243	3	Yes	$25	1	1	7/1	12	39	21
University of California Hospital	San Francisco	F. S. Smyth	452	64	Yes	$25	1	2	7/1	12	43	30
Children's Hospital	Denver		3,068	7	No	$50	1	4	7/1	12	117	76
New Haven Hospital	New Haven, Conn.	G. F. Powers	1,087	34	Yes	$40	1	3	7/1	12	47	25
Children's Hospital	Washington, D. C.	J. S. Wall	6,023	..	Yes	$10	1	10	7/1	36	278	121
Freedmen's Hospital (col.)	Washington, D. C.	A. D. Smith	594	85	Yes	[a]	1	0	10/1	12	43	18
Gallinger Municipal Hospital	Washington, D. C.	M. Nicholson	1,916	99	No	$30	2	0	7/1	12	84	28
Grady Hospital	Atlanta, Ga.	W. W. Anderson and M. H. Roberts	1,238	100	Yes	$50	1	0	6/20	12	136	39
Henrietta Egleston Hosp. for Children	Atlanta, Ga.	M. H. Roberts	993	78	No	$40	2	0	1/1&7/1	12	78	38
University Hospital	Augusta, Ga.	C. M. Burpee	955	44	Yes	$45	1	1	7/1	12	90	40
Children's Memorial Hospital	Chicago	J. Brennemann	4,227	50	Yes	$50	1	17	1/1&7/1	12	138	98
Cook County Hospital	Chicago	M. Blatt	8,354	100	Yes	$25	5	0	1/1&7/1	12	454	253
Michael Reese Hospital	Chicago		3,590	41	Yes	$100	1	0	7/1	12	...	...
Presbyterian Hospital	Chicago	C. Grulee	476	22	Yes	$50	1	0	7/1	12	22	15
Provident Hospital (col.)	Chicago	E. W. Beasley	221	63	Yes	$50	1	0	9/1	12	27	16
Research and Educational Hospital [2]	Chicago	J. H. Hess	153	100	Yes	$50	1	0	7/1	12	10	10
University of Chicago Clinics	Chicago	F. W. Schlutz	874	38	Yes	None	1	8	1/1&7/1	24	28	19
Indianapolis City Hospital	Indianapolis	J. C. Carter	578	88	Yes	$42	1	0	7/1	12	124	44
Indiana University Hospitals	Indianapolis	L. T. Meiks and M. Winters	1,358	82	Yes	$33	2	0	7/1	13	154	92
University Hospitals	Iowa City	P. C. Jeans	904	86	Yes	$20	1	2	7/1	24	74	43
University of Kansas Hospitals	Kansas City	F. C. Neff	288	66	Yes	$50	1	0	7/1	12	37	31
Louisville City Hospital	Louisville, Ky.	P. F. Barbour	2,108	90	Yes	$14	1	3	7/1	36	166	49
Charity Hospital	New Orleans	R. A. Strong and J. Signorelli	634	100	Yes	$25	2	0	7/1	24	88	87
Touro Infirmary	New Orleans	L. R. DeBuis	413	35	Yes	$25	1	0	7/1	12	...	...
Baltimore City Hospitals	Baltimore	T. C. Goodwin	372	99	Yes	$17	1	1	7/1	12	61	39
Johns Hopkins Hospital	Baltimore	E. A. Park	1,053	43	Yes	None	1	2	7/1&9/1	12-48	147	106
Union Memorial Hospital	Baltimore	D. C. W. Smith	1,094	16	Yes	$12	1	1	7/1	12	21	14
Boston City Hospital	Boston	M. J. English	4,920	94	Yes	$83	1	0	Varies	26	297	35
Boston Floating Hospital	Boston	E. W. Barron	1,228	100	Yes	[a]	1	3	7/1,8/1,10/1	12	29	22
Children's Hospital	Boston	K. D. Blackfan	1,562	1	Yes	...	1	0	Varies	24	47	18
Massachusetts General Hospital	Boston	H. L. Higgins	450	44	Yes	$42	1	0	1/1	12	36	19
University Hospital	Ann Arbor, Mich.	D. M. Cowie	1,280	81	Yes	$25	2	8	7/1	36	49	22
Children's Hospital	Detroit	T. B. Cooley	3,527	78	Yes	$25	2	12	7/1	24	439	205
Henry Ford Hospital	Detroit	J. A. Johnston	.....	..	Yes	$130	1	2	9/1	12	37	18
Minneapolis General Hospital [1]	Minneapolis	A. B. Stoesser	920	85	Yes	$25	1	1	1/1&7/1	12	59	52
University Hospitals [1]	Minneapolis	I. McQuarrie	1,277	12	Yes	$50	2	0	7/1	36	96	65
Wheatley-Provident Hospital (col.)	Kansas City, Mo.	F. S. Hogue	132	13	Yes	$40	1	0	7/1	24	10	4
St. Louis Children's Hospital	St. Louis	A. F. Hartman	3,041	24	Yes	$25	1	2	1/1&7/1	12	155	89
St. Louis City Hospital	St. Louis	J. Cook	894	100	Yes	$100	1	0	7/1	12	98	51
St. Mary's Group of Hospitals	St. Louis	J. Zahorsky	1,082	42	Yes	$25	2	0	7/1	34	42	26
Jersey City Hospital	Jersey City, N. J.	C. DeFuccio and J. Sullivan	1,293	90	Yes	$100	1	0	7/1	12	57	12
Cumberland Hospital	Brooklyn	T. B. Givan	1,478	100	Yes	$100	1	0	7/1	12	54	42
Jewish Hospital	Brooklyn	B. Kramer	637	24	Yes	$50	1	2	7/1	12	82	34
Kings County Hospital	Brooklyn	L. Krahulik and G. Brockway	5,474	100	Yes	$15	2	1	7/1	12	371	200
Long Island College Hospital	Brooklyn	C. A. Weymuller	406	7	Yes	$22	1	2	7/1	12	59	30
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn		275	17	Yes	None	1	0	7/1	12	52	25
Buffalo City Hospital	Buffalo	H. R. Lohnes	275	65	Yes	$68	1	2	7/1	48	31	5
Children's Hospital	Buffalo	H. R. Lohnes	5,140	51	Yes	$50	1	1	7/1	12	189	93
Queens General Hospital	Jamaica, N. Y.	W. C. A. Steffen	2,083	100	Yes	$15	1	2	7/1	12	95	72
Babies Hospital	New York City	R. McIntosh	3,082	40	Yes	$50	1	11	7/1	12	122	70
Bellevue Hospital [2]	New York City	C. H. Smith	2,039	100	Yes	...	1	6	Quart.	36	196	138
Flower-Fifth Avenue Hospital	New York City	J. T. Simonson	1,321	5	Yes	$50	2	0	7/1	12	55	24
Harlem Hospital [2]	New York City	M. Gleich	888	100	No	$15	1	0	7/1	12	117	62
Metropolitan Hospital	New York City	R. A. Benson	1,487	100	Yes	$100	1	1	7/1	12	60	11
Morrisania City Hospital	New York City	L. Barenberg	925	100	Yes	$15	1	1	7/1	12	106	50
Mount Sinai Hospital	New York City	B. Schick	.....	55	Yes	$50	1	1	1/1&7/1	12	59	44
New York Foundling Hospital [14]	New York City		2,323	1	Yes	$25	9	0	1/1&7/1	12	38	28
New York Hospital	New York City	S. Z. Levine	1,127	23	Yes	None	1	5	7/1	60	121	65
New York Post-Graduate Medical School and Hospital	New York City	A. G. DeSanctis	1,181	13	Yes	$90	1	0	1/1	12	61	36
St. Luke's Hospital [2]	New York City	F. E. Johnson	434	48	Yes	None	1	1	1/1&7/1	12	...	...
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	S. W. Clausen	1,072	63	Yes	$42	1	3	7/1	12	53	33
Sea View Hospital	Staten Island, N. Y.	B. Schick	349	100	No	$100	4	0	1/1&7/1	12	18	6
Syracuse Memorial Hospital	Syracuse, N. Y.	E. J. Wynkoop	1,186	43	No	None	1	0	7/1	12	61	25
Grasslands Hospital	Valhalla, N. Y.	F. D. Barnes	310	86	Yes	$75	1	0	Varies	24	34	25
Duke Hospital	Durham, N. C.	W. O. Davison	570	56	Yes	$42	1	0	7/1	48	90	51
Children's Hospital	Akron, O.	J. G. Kramer	1,048	50	Yes	$75	1	0	7/1	12	132	61
Children's Hospital	Cincinnati	A. G. Mitchell	4,259	70	Yes	$25	2	11	7/1	36	172	85
Cincinnati General Hospital	Cincinnati	A. G. Mitchell	1,084	87	Yes	[a]	6	7	7/1	36	176	97
St. Vincent Charity Hospital [2]	Cleveland	W. M. Champion	152	35	Yes	$35	1	0	7/1	12	12	4
University Hospitals [1]	Cleveland	H. J. Gerstenberger	875	35	Yes	$25	2	2	7/1	48	101	56
Children's Hospital	Columbus, O.	E. H. Baxter	2,288	84	Yes	$60	3	0	7/1	12	92	39
University of Oregon Medical School Hospitals	Portland	J. B. Bilderback	2,375	100	Yes	$40	2	0	7/1	12	88	51
Children's Hospital	Philadelphia	J. C. Gittings	2,131	54	Yes	None	1	10	7/1	12	91	49
Children's Hospital of the Mary J. Drexel Home	Philadelphia	J. A. Babbitt	921	53	Yes	$100	1	0	7/1	12	24	7
Hospital of the University of Pennsylvania	Philadelphia	J. C. Gittings	294	28	Yes	None	1	0	7/1	12	41	34
Jewish Hospital	Philadelphia		439	31	....	None	1	0	6/15	12	23	9
Philadelphia General Hospital	Philadelphia		1,885	95	Yes	$100	1	0	7/1	12	...	...
St. Christopher's Hospital for Children	Philadelphia		1,970	34	Yes	$50	4	0	7/1	12	40	13
Children's Hospital	Pittsburgh	H. T. Price	3,339	50	Yes	$35	1	3	7/1	12	210	64
Roper Hospital	Charleston, S. C.	M. W. Beach	545	71	Yes	$40	1	0	7/1	12	85	36
Children's Hospital	Chattanooga, Tenn.	W. D. Anderson	1,340	65	Yes	$50	1	1	7/1	12	151	24
John Gaston Hospital	Memphis, Tenn.	E. C. Mitchell	1,509	97	Yes	$32	1	0	7/1	12	111	36
Vanderbilt University Hospital	Nashville, Tenn.	H. Casparis	900	29	Yes	$35	1	2	7/1	12	91	66
Medical College of Virginia, Hospital Division	Richmond	L. E. Sutton	1,223	5	Yes	$50	1	0	7/1	12	156	49
University of Virginia Hospital	University	L. T. Royster	978	30	Yes	$30	1	0	7/1	12	85	25
State of Wisconsin General Hospital	Madison	J. Gonce	.....	85	Yes	$25	1	0	7/1	36	...	...
Milwaukee Children's Hospital	Milwaukee	S. Seeger and R. Greenthal	3,461	57	Yes	$30	1	6	1/1&7/1	12	134	70

Numerical and other references will be found on page 847.

3. PSYCHIATRY AND NEUROLOGY

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
a. NEUROLOGY												
Los Angeles County Hospital	Los Angeles	S. D. Ingham	1,633	100	Yes	$10	2	0	4/1	24	375	141
Gallinger Municipal Hospital	Washington, D. C.	J. W. Watts	3,046	99	No	$30	1	0	7/1	12	131	61
University of Chicago Clinics [9]	Chicago	P. Bailey	525	38	Yes	$25	1	1	1/1&7/1	36	36	30
University Hospitals	Iowa City	C. Van Epps	847	86	Yes	$20	1	1	7/1	24	26	11
Boston City Hospital	Boston	T. J. Putnam	667	94	Yes	None	1	1	Varies	12	24	13
Massachusetts General Hospital	Boston	J. B. Ayer	352	44	Yes	$42	1	1	1/1	12	21	12
University Hospital	Ann Arbor, Mich.	C. Camp	954	81	Yes	$25	2	1	7/1	48	35	22
Kings County Hospital	Brooklyn	J. Smith	3,628	100	Yes	$15	1	2	7/1	24	485	68
Bellevue Hospital [2]	New York City	F. Kennedy	288	100	Yes	$83	1	2	7/1	24	...	...
Central Neurological Hospital	New York City	M. Neustaedter	1,318	..	No	$100	6	0	1/1&7/1	12	288	89
Lenox Hill Hospital	New York City	T. K. Davis and R. MacRobert	194	24	Yes	$25	1	0	7/1	12	11	1
Metropolitan Hospital	New York City	S. P. Jewett	303	100	Yes	$75	1	0	7/1	12	54	5
Montefiore Hosp. for Chronic Diseases	New York City	S. P. Goodhart	260	88	Yes	$50	1	3	1/1&7/1	18	31	27
Mount Sinai Hospital	New York City	I. Strauss	.....	55	Yes	$50	1	2	1/1&7/1	18	...	...
Neurological Institute of New York	New York City	F. Tilney	3,031	8	....	$40	1	11	Varies	36	153	86
Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases	Philadelphia	C. W. Burr and F. W. Sinkler	249	31	Yes	$40	1	0	7/1	12	6	1
Temple University Hospital [1,2]	Philadelphia	T. Fay	591	43	Yes	$40	1	0	7/1	36	54	24
b. PSYCHIATRY												
Compton Sanitarium	Compton, Calif.	G. E. Myers	70	..	No	$150	1	0	Varies	12	...	...
Stanford University Hospitals	San Francisco	G. S. Johnson	419	3	Yes	$25	1	2	7/1	12	9	5
University of California Hospital	San Francisco	W. J. Kerr	110	64	Yes	$25	1	0	7/1	12	...	...
Mendocino State Hospital	Talmage, Calif.	R. O. LeBaron	2,784	90	No	$50	2	0	Varies	36	166	51
Colorado Psychopathic Hospital [1]	Denver	F. G. Ebaugh	942	69	Yes	$100	1	7	9/1	36	16	9
Neuro-Psychiatric Institute of the Hartford Retreat [1]	Hartford, Conn.	C. C. Burlingame	890	..	No	...	9	0	Varies	36	22	4
Connecticut State Hospital	Middletown	H. O. Colomb	3,923	100	Yes	$50	3	0	Varies	36	278	45
New Haven Hospital	New Haven, Conn.	E. Kahn	358	34	Yes	$40	1	4	7/1	12	1	1
Delaware State Hospital	Farnhurst, Del.	M. A. Tarumianz	1,125	83	Yes	$50	9	0	7/1	12	97	25
Gallinger Municipal Hospital	Washington, D. C.	D. P. Hickling	3,046	99	No	$30	1	0	7/1	12	131	61
St. Elizabeths Hospital	Washington, D. C.	R. W. Hall	6,660	100	No	$166	12	0	7/1&10/1	12	325	210
Cook County Hospital	Chicago	F. Gerty	6,235	100	No	$75	3	0	1/1&7/1	12	161	5
Michael Reese Hospital	Chicago	.....	15	41	Yes	$100	1	0	7/1	12	...	...
Research and Educational Hospital [2]	Chicago	H. D. Singer	113	100	Yes	$50	3	0	7/1	12	5	5
University of Chicago Clinics	Chicago	D. Slight	195	38	Yes	None	1	1	1/1&7/1	12	...	...
Elgin State Hospital [2]	Elgin, Ill.	C. F. Read	6,322	100	No	$50	1	0	Varies	12	451	164
Central State Hospital	Indianapolis	M. A. Bahr	1,834	100	Yes	$157	4	0	Varies	36	173	67
Indianapolis City Hospital	Indianapolis	L. D. Carter	523	88	Yes	$42	1	0	7/1	12	38	14
Logansport State Hospital	Logansport, Ind.	P. D. Williams	1,959	96	No	$142	2	0	Varies	36	149	31
Iowa State Psychopathic Hospital	Iowa City	W. Malamud	392	73	Yes	$150	2	0	7/1	12	3	1
Osawatomie State Hospital	Osawatomie, Kan.	R. M. Fellows	1,670	92	Yes	$75	3	0	7/1&9/1	12	115	41
Menninger Sanitarium	Topeka, Kan.	W. C. Menninger	135	..	Yes	$120[c]	4	0	1/1&7/1	12	3	2
U. S. Public Health Service Hospital [23]	Lexington, Ky.	W. L. Treadway	1,507	..	....	$150	1	0	7/1	12	19	15
Johns Hopkins Hospital	Baltimore	A. Meyer	262	43	Yes	None	1	2	7/1&9/1	12-48	...	...
Spring Grove State Hospital	Catonsville, Md.	S. W. Weltmer	.....	99	No	$150	1	0	Varies	12	131	54
Springfield State Hospital	Sykesville, Md.	I. A. Darling	3,281	99	Yes	$100	4	0	7/1	24	200	48
Sheppard and Enoch Pratt Hospital	Towson, Md.	R. McC. Chapman	662	5	No	$100	4	0	Varies	12	9	3
McLean Hospital	Belmont, Mass.	K. J. Tillotson	265	6	Yes	$75	7	0	Varies	12	11	3
Boston Psychopathic Hospital	Boston	C. M. Campbell	2,121	83	Yes	$75	8	0	9/1	12	31	11
Boston State Hospital	Boston	H. F. Norton	.....	97	No	...	4	0	Varies	36	272	106
Massachusetts General Hospital	Boston	S. Cobb	87	44	Yes	$42	1	1	1/1	12	...	...
Foxboro State Hospital	Foxboro, Mass.	W. C. Gaebler	1,351	..	Yes	$45	1	0	7/1	12	94	15
Gardner State Hospital	Gardner, Mass.	C. E. Thompson	1,530	97	Yes	$150	2	0	Varies	12	64	25
Danvers State Hospital	Hathorne, Mass.	C. A. Bonner	.....	..	Yes	None	4	0	9/1	12	274	73
Medfield State Hospital	Medfield, Mass.	G. A. Troxell	.....	99	No	$150	2	0	Varies	24	20	6
Northampton State Hospital	Northampton, Mass.	G. C. Randall	2,897	90	Yes	$150	4	0	Varies	36	195	37
Grafton State Hospital	North Grafton, Mass.	H. L. Paine	1,608	97	Yes	$150	2	0	Varies	12	69	12
Taunton State Hospital	Taunton, Mass.	R. G. Osterheld	2,199	88	Yes	$150	5	0	7/1	12	204	92
Westboro State Hospital	Westboro, Mass.	W. E. Lang	2,035	84	Yes	$150	3	0	7/1	24	141	24
Worcester State Hospital	Worcester, Mass.	M. Yorshis	3,153	90	Yes	None	2	0	7/1	12	284	137
University Hospital	Ann Arbor, Mich.	R. W. Waggoner	.....	81	Yes	$25	1	0	7/1	36	1	1
Eloise Hospital for Mental Diseases [2]	Eloise, Mich.	M. H. Hoffmann	4,104	100	Yes	$150	2	0	Varies	36	253	59
Pontiac State Hospital	Pontiac, Mich.	P. V. Wagley	1,826	..	Yes	$150	3	3	Varies	36	126	47
Traverse City State Hospital	Traverse City, Mich.	R. P. Sheets	1,600	97	Yes	$150	4	0	Varies	36	138	37
Ypsilanti State Hospital	Ypsilanti, Mich.	G. F. Inch	1,829	85	Yes	$50	3	0	Varies	36	89	40
Minneapolis General Hospital [1,2]	Minneapolis	J. C. Michael	1,590	100	Yes	$25	1	0	7/1	12	184	48
University Hospitals [1]	Minneapolis	J. C. McKinley	161	12	Yes	$50	2	0	1/1&7/1	36	...	...
State Hospital No. 1	Fulton, Mo.	T. S. Lapp	.....	96	No	$167	4	0	Varies	36	167	31
State Hospital No. 2	St. Joseph, Mo.	O. Mullinax	2,563	..	No	$167	2	0	Varies	36	279	90
City Sanitarium	St. Louis	L. H. Kohler	4,171	82	Yes	$150	3	8	7/1	12	215	95
St. Louis City Hospital	St. Louis	.....	2,070	100	Yes	$75	1	1	7/1	24	196	88
Hastings State Hospital	Ingleside, Neb.	J. C. Nielson	1,529	85	Yes	$125	3	0	1/1&7/1	12	85	55
Norfolk State Hospital	Norfolk, Neb.	G. E. Charlton	1,053	90	Yes	$140	2	0	Varies	36	63	28
Bishop Clarkson Memorial Hospital	Omaha	A. E. Bennett	195	5	No	$50	1	0	7/1	12	6	2
New Jersey State Hospital	Greystone Park	M. A. Curry	7,269	18	No	$160	9	0	Varies	36	517	103
Albany Hospital	Albany, N. Y.	.....	813	2	Yes	$25	1	1	7/1	24	56	34
Binghamton State Hospital	Binghamton, N. Y.	W. C. Garvin	3,620	92	No	$150	3	0	Varies	36	247	113
Buffalo City Hospital	Buffalo	S. A. Hartwell	916	65	Yes	$68	2	2	7/1	36	98	2
Buffalo State Hospital	Buffalo	J. A. Pritchard	2,909	87	Yes	$150	3	0	Varies	18	190	52
Central Islip State Hospital	Central Islip, N. Y.	D. Corcoran	6,445	90	Yes	$150	5	0	Varies	36	397	141
Hastings Hillside Hospital	Hastings-on-Hudson, N. Y.	L. Wender	102	12	Yes	$100	1	0	7/1	12	...	...
Gowanda State Homeopathic Hospital	Helmuth, N. Y.	E. V. Gray	2,400	89	Yes	$150	5	0	Varies	36	211	96
Kings Park State Hospital	Kings Park, N. Y.	C. S. Parker	5,416	89	Yes	$150	8	0	Varies	36	212	88
Marcy State Hospital	Marcy, N. Y.	W. W. Wright	.....	88	Yes	$150	3	0	Varies	36	285	78
Bellevue Hospital [2]	New York City	K. M. Bowman	.....	100	Yes	$15	4	6	1/1&7/1	24	760	235
New York Hospital	New York City	O. Diethelm	342	23	Yes	$50	1	9	7/1	48	2	1
N. Y. State Psychiatric Institute and Hospital	New York City	N. D. C. Lewis	226	80	Yes	$25	6	0	1/1&7/1	12	...	...
U. S. Marine Hospital	New York City	J. D. Reichard	730	100	Yes	$92	2	0	7/1	12	3	2
St. Lawrence State Hospital	Ogdensburg, N. Y.	P. G. Taddiken	2,670	91	Yes	$150	14	0	Varies	12	191	75
Hudson River State Hospital	Poughkeepsie, N. Y.	R. P. Folsom	4,421	89	Yes	$150	7	0	Varies	12	376	115
Rochester State Hospital	Rochester, N. Y.	J. L. Van De Mark	3,101	85	Yes	$150	5	0	Varies	12	234	75
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	E. K. Clarke	489	63	Yes	$42	1	0	7/1	12	...	...
Utica State Hospital	Utica, N. Y.	R. H. Hutchings	2,522	100	Yes	$150	1	0	Varies	12	180	61
Grasslands Hospital	Valhalla, N. Y.	T. P. Brennan	1,317	86	Yes	$117	1	2	7/1	24	55	40
New York Hosp.—Westchester Division	White Plains, N. Y.	C. O. Cheney	649	3	Yes	$125	6	0	1/1&7/1	36	16	5
Duke Hospital	Durham, N. C.	R. S. Crispell	300	56	Yes	$42	1	0	7/1	24	...	...
Cincinnati General Hospital	Cincinnati	E. A. North	1,253	87	Yes	[a]	1	2	7/1	24	62	18
Longview State Hospital	Cincinnati	D. Goldman	2,535	..	Yes	$75	1	0	Varies	36	247	82
City Hospital	Cleveland	C. W. Stone	873	97	Yes	$42	1	3	7/1	12	87	36

Numerical and other references will be found on page 847.

3. PSYCHIATRY AND NEUROLOGY—(Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
b. PSYCHIATRY (Continued)												
Toledo State Hospital	Toledo, O.	O. O. Fordyce	2,646	67	Yes	$60	2	0	1/1&7/1	12	227	55
Harding Sanitarium	Worthington, O.	G. T. Harding	347	..	Yes	$100	1	0	8/1	12	4	0
Allentown State Hospital	Allentown, Pa.	H. I. Klopp	2,462	79	Yes	$125	3	0	Varies	12	98	26
Danville State Hospital	Danville, Pa.	J. A. Jackson	2,369	89	....	$100	1	0	Varies	12	174	33
Norristown State Hospital	Norristown, Pa.	A. P. Noyes	4,036	73	Yes	$125	6	0	Varies	36	290	86
Institute of the Pennsylvania Hospital	Philadelphia	E. D. Bond	517	3	Yes	[b]	1	1	7/1	12	...	...
Pennsylvania Hospital Dept. for Mental and Nervous Diseases	Philadelphia	E. D. Bond	277	2	Yes	$125	4	0	1/1&7/1	12	16	8
Philadelphia General Hospital	Philadelphia		2,402	95	Yes	$150	2	0	7/1	12	...	...
Temple University Hospital	Philadelphia	O. S. English	2,402	38	Yes	$40	1	0	7/1	36	330	160
St. Francis Hospital	Pittsburgh		2,951	14	Yes	$50	2	0	9/1	12	135	25
Warren State Hospital [2]	Warren, Pa.	R. H. Israel	3,167	82	No	$125	3	0	Varies	36	168	45
State Hospital for Mental Diseases	Howard, R. I.	S. F. H. Howes	3,090	95	Yes	$150	3	0	Varies	36	199	84
Butler Hospital	Providence, R. I.	A. H. Ruggles	339	5	Yes	$50	3	0	1/1&7/1	12	13	3
Charles V. Chapin Hospital	Providence, R. I.	H. E. Kiene	488	65	Yes	$75	1	0	1/1	12	33	15
Galveston State Psychopathic Hospital	Galveston, Tex.	L. R. Brown	400	3	Yes	$100	6	0	Varies	12	...	...
John Sealy Hospital	Galveston, Tex.	T. Harris	578	50	Yes	$50	1	0	7/1	12	26	12
University of Virginia Hospital	University	D. C. Wilson	339	30	Yes	[a]	1	1	7/1	24	8	3
Western State Hospital	Ft. Steilacoom, Wash.	W. N. Keller	3,178	..	....	$25	3	0	7/1	12	276	135
State of Wisconsin General Hospital	Madison	W. Lorenz	.....	85	Yes	$25	1	1	7/1	36	...	...
Milwaukee County Hospital for Mental Diseases	Wauwatosa, Wis.	M. Kasak	1,492	75	Yes	$50	3	0	1/1&7/1	12	41	10
Milwaukee Sanitarium	Wauwatosa, Wis.	L. H. Ziegler	219	3	No	$50	1	0	7/1	12	6	0
c. EPILEPSY												
Monson State Hospital	Palmer, Mass.	M. B. Hodskins	1,596	98	Yes	$10	1	0	6/15	12	86	24
Craig Colony	Sonyea, N. Y.	W. T. Shanahan	2,492	94	No	$150	1	0	Varies	12	161	63
d. MENTAL DEFICIENCIES												
Michigan Home and Training School	Lapeer	E. J. Knaggs	3,740	100	Yes	$150	2	0	Varies	12	78	35

4. DERMATOLOGY AND SYPHILOLOGY

Los Angeles County Hospital	Los Angeles	E. D. Lovejoy	554	100	Yes	$10	2	0	4/1	24	18	10
University of California Hospital	San Francisco	W. J. Kerr	14	64	Yes	$25	2	0	7/1	12	...	...
University of Chicago Clinics	Chicago	S. W. Becker	131	38	Yes	None	1	0	1/1&7/1	24	...	...
Massachusetts General Hospital	Boston	C. G. Lane	350	44	Yes	$42	1	1	7/1	12	7	2
University Hospital	Ann Arbor, Mich.	U. Wile	1,317	81	Yes	$25	2	2	7/1	36	10	5
Minneapolis General Hospital [1]	Minneapolis	S. E. Sweitzer	239	85	Yes	$25	1	0	Varies	36	2	2
University Hospitals [1, 2]	Minneapolis	J. C. McKinley	183	12	Yes	None	1	0	Varies	36	7	6
Barnard Free Skin and Cancer Hospital	St. Louis	M. F. Engman	45	100	Yes	$25	1	0	7/1	12	1	1
Kings County Hospital	Brooklyn	A. Potter	1,695	100	Yes	$100	1	0	9/1	12	15	3
Buffalo City Hospital	Buffalo	E. D. Osborne	447	65	Yes	$68	2	3	7/1	36	4	2
Bellevue Hospital [2]	New York City	H. Fox	787	100	Yes	$15	1	2	1/1&7/1	18	16	5
Metropolitan Hospital	New York City	F. M. Dearborn	88	100	Yes	None	1	0	7/1	12	...	...
Montefiore Hosp. for Chronic Diseases	New York City	F. Wise	17	88	Yes	$25	1	0	7/1	12	1	1
N. Y. Post-Graduate Medical School and Hospital	New York City	G. M. MacKee	190	13	Yes	None	1	2	4/1,7/1,10/1	24	3	0
Cincinnati General Hospital	Cincinnati	E. Tauber	442	87	Yes	[a]	1	2	7/1	24	24	6
City Hospital	Cleveland	H. N. Cole	616	97	Yes	$42	1	1	7/1	12	14	6
University Hospitals	Cleveland	H. N. Cole	178	35	Yes	$25	1	1	7/1	24	...	...
Skin and Cancer Hospital	Philadelphia	A. Strickler	183	14	Yes	$50	1	1	7/1	24	3	1
University of Virginia Hospital	University	D. C. Smith	150	30	Yes	$50	1	1	7/1	36	7	4

5. OBSTETRICS AND GYNECOLOGY

a. GYNECOLOGY												
Los Angeles County Hospital	Los Angeles	H. Shaw and W. Smith	1,783	100	Yes	$10	3	0	4/1&10/1	18	19	8
Passavant Memorial Hospital	Chicago	A. H. Curtis	564	7	Yes	None	1	0	1/1	12	...	...
Indiana University Hospitals	Indianapolis	C. Habich	747	82	Yes	$33	1	0	7/1	12	4	2
Touro Infirmary	New Orleans	H. E. Miller	1,102	35	Yes	$25	1	0	7/1	12	...	...
Johns Hopkins Hospital	Baltimore	T. S. Cullen	1,699	43	Yes	None	1	4	7/1&9/1	12-48	15	11
University Hospital	Baltimore	J. M. Hundley, Jr.	724	47	Yes	None	1	1	7/1	24	16	6
Free Hospital for Women	Brookline, Mass.	F. A. Pemberton	2,274	79	Yes	$83	1	0	1/1	12	28	16
Jersey City Hospital	Jersey City, N. J.	C. Kelly and J. Rector	542	90	Yes	$100	1	0	1/1	12	17	2
Albany Hospital	Albany, N. Y.	A. J. Wallingford	1,992	2	Yes	$25	1	1	7/1	36	25	23
Buffalo City Hospital	Buffalo	J. E. King	555	65	Yes	$68	1	1	7/1	36	13	4
Buffalo General Hospital	Buffalo	J. E. King	1,227	3	Yes	$25	1	0	7/1	12	14	6
Harlem Hospital	New York City	H. C. Falk	1,255	100	Yes	$15	1	0	7/1	12	35	18
Mount Sinai Hospital	New York City	S. H. Geist and I. C. Rubin	.....	55	Yes	$50	1	1	1/1&7/1	12	7	5
N. Y. Post-Graduate Medical School and Hospital	New York City	W. T. Dannreuther	568	13	Yes	$90	1	0	10/1	12	6	3
Syracuse Memorial Hospital	Syracuse, N. Y.	N. P. Sears	676	43	Yes	None	1	0	7/1	12	7	0
University Hospitals	Cleveland	W. H. Weir	1,271	35	Yes	$25	1	4	7/1	36	12	6
Starling-Loving University Hospital	Columbus, O.	F. Fletcher and P. J. Reel	369	58	Yes	$25	1	1	7/1	12	2	2
Graduate University of the University of Pennsylvania	Philadelphia	W. R. Nicholson	441	33	Yes	None	1	0	7/1	12	4	2
Elizabeth Steel Magee Hospital	Pittsburgh	R. R. Huggins	891	39	Yes	$42	2	0	9/1	24	17	7
St. Francis Hospital	Pittsburgh	B. Z. Cashman	737	14	Yes	$50	1	0	9/1	12	9	1
John Gaston Hospital	Memphis, Tenn.	W. T. Black	877	97	Yes	$32	1	0	7/1	12	33	7
OBSTETRICS-GYNECOLOGY (see page 839)												
b. OBSTETRICS												
Los Angeles County Hospital	Los Angeles	E. N. Lazard	5,705	100	Yes	$10	5	0	1/1&7/1	18	34	16
Hospital for Children	San Francisco	H. A. Stephenson	.....	4	Yes	$25	1	0	7/1	12	2	1
Garfield Memorial Hospital	Washington, D. C.	A. Y. P. Garnett	1,266	..	Yes	$50	1	0	7/1	12	7	0
Chicago Maternity Center [10]	Chicago	J. B. DeLee	6,005	100	Yes	None	1	0	1/1	12	14	9
Cook County Hospital	Chicago	D. S. Hillis	6,669	100	Yes	$25	4	0	1/1&7/1	12	54	26
Provident Hospital (col.)	Chicago	P. M. Santos	993	63	Yes	$50	1	0	9/1	12	3	2
Research and Educational Hospital [2]	Chicago	F. H. Falls	807	100	Yes	$50	1	1	1/1&7/1	24	31	30
Indiana University Hospitals	Indianapolis	H. F. Beckman	1,144	82	Yes	$33	1	0	7/1	12	7	2
Louisville City Hospital	Louisville, Ky.	A. N. Pickett	1,183	90	Yes	$14	1	5	7/1	36	3	0
Touro Infirmary	New Orleans	W. E. Levy	1,005	35	Yes	$25	1	0	7/1	12	...	...
Baltimore City Hospitals	Baltimore	L. H. Douglass	1,784	99	Yes	$17	1	2	7/1	12	8	4
Johns Hopkins Hospital	Baltimore	N. J. Eastman	1,832	43	Yes	None	1	3	7/1&9/1	12-48	9	7
Provident Hospital and Free Dispensary (col.)	Baltimore	L. H. Douglass	190	73	Yes	$25	1	0	10/15	12	10	3
Sinai Hospital	Baltimore	M. W. Aaronson	853	37	Yes	$50	1	0	7/1	12	2	2
University Hospital	Baltimore	L. H. Douglass	1,092	47	Yes	None	1	2	7/1	24	5	2
Boston Lying-in Hospital	Boston	F. C. Irving	3,219	10	Yes	None	1	2	1/1	18	60	33
Massachusetts Memorial Hospitals	Boston	E. W. Smith	1,524	31	Yes	$91	2	0	7/1	24	44	28

Numerical and other references will be found on page 847.

5. OBSTETRICS AND GYNECOLOGY—(Continued)

b. OBSTETRICS (Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Providence Hospital	Detroit	J. A. Rieden	2,663	10	No	$100	1	0	7/1	12	9	1
Cooper Hospital	Camden, N. J.	A. B. Davis	1,671	44	Yes	$100	1	0	7/1	36	41	4
Margaret Hague Maternity Hospital	Jersey City, N. J.		6,298	52	Yes	$100	7	0	Quart.	21	153	77
Cumberland Hospital	Brooklyn	W. C. Meagher	1,230	100	Yes	$100	1	0	7/1	12	4	2
Methodist Episcopal Hospital	Brooklyn	O. P. Humpstone	.....	10	Yes	$90	1	1	1/1&7/1	18	...	...
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn		818	17	Yes	None	1	1	7/1	12	4	1
Buffalo City Hospital	Buffalo	F. C. Goldsborough	669	65	Yes	$68	1	1	7/1	36	3	0
Buffalo General Hospital	Buffalo	F. C. Goldsborough	760	3	Yes	$25	1	0	7/1	12	2	1
Millard Fillmore Hospital	Buffalo	M. Potter	1,511	17	Yes	$25	1	0	7/1	12	5	5
Fordham Hospital	New York City	A. C. Butts	2,975	100	Yes	$15	1	0	7/1	12	58	42
Harlem Hospital	New York City	F. A. Kassebohm	.....	100	Yes	$15	1	0	7/1	12	...	...
Lenox Hill Hospital	New York City	P. H. Williams and R. L. McCready	812	24	Yes	$50	1	0	7/1	12	...	...
Lincoln Hospital	New York City	E. J. Davin	1,852	..	Yes	$100	1	0	Varies	..	8	1
Morrisania City Hospital	New York City	H. Aranow	1,940	100	Yes	$15	1	1	1/1&7/1	12	54	46
N. Y. Polyclinic Med. School and Hosp.	New York City		939	15	Yes	$128	1	0	7/1	12	2	1
Syracuse Memorial Hospital	Syracuse, N. Y.	H. Schoeneck	1,284	43	Yes	None	1	0	7/1	12	9	3
Cincinnati General Hospital	Cincinnati	H. L. Woodward	2,608	87	Yes	[a]	1	2	7/1	24	9	5
City Hospital	Cleveland	A. H. Bill	1,495	97	Yes	$42	1	2	7/1	12	...	...
Mount Sinai Hospital	Cleveland	M. Garber	746	20	Yes	$60	1	0	7/1	12	...	...
St. Ann's Maternity Hospital	Cleveland	J. R. Thompson	1,519	5	Yes	$50	2	0	7/1	12	36	29
St. John's Hospital	Cleveland	C. A. O'Connell	889	18	....	$25	1	0	7/1	12	3	0
St. Luke's Hospital	Cleveland	A. J. Skeel	1,553	18	Yes	$25	1	1	7/1	24	4	0
University Hospitals	Cleveland	A. H. Bill	2,233	35	Yes	$25	1	4	7/1	36	117	36
Miami Valley Hospital	Dayton, O.	W. A. Ricketts	1,387	23	No	$75	1	0	7/1	12	4	0
State University and Crippled Children's Hospitals	Oklahoma City	W. W. Wells	569	71	Yes	$50	1	0	7/1	12	4	0
George F. Geisinger Memorial Hospital	Danville, Pa.	R. E. Nicodemus	571	27	Yes	$50	1	0	9/1	12	4	2
Jefferson Medical College Hospital	Philadelphia	N. W. Vaux	1,357	49	Yes	$50	2	0	7/1&10/1	36	4	3
Elizabeth Steel Magee Hospital	Pittsburgh	C. E. Ziegler	2,762	39	Yes	$42	3	0	9/1	12	20	7
St. Francis Hospital	Pittsburgh	J. H. Carroll	885	14	Yes	$50	1	0	9/1	12	18	8
John Gaston Hospital	Memphis, Tenn	W. T. Pride	2,371	97	Yes	$32	1	0	7/1	12	40	9
Baylor University Hospital	Dallas, Tex	C. R. Hannah	1,202	20	Yes	$75	1	1	7/1	12	5	2
Parkland Hospital	Dallas, Tex	W. T. Robinson	1,700	91	Yes	$10	1	1	1/1&7/1	24	...	...
Medical College of Virginia, Hospital Division	Richmond	H. H. Ware	1,096	5	Yes	$50	1	1	7/1	12	15	6

c. OBSTETRICS-GYNECOLOGY

Hillman Hospital	Birmingham, Ala.		2,590	100	Yes	$40	2	0	7/1	12	60	23
White Memorial Hospital	Los Angeles	R. J. Thompson	1,636	2	Yes	$90	2	0	7/1	36	5	2
Alameda County Hospital	Oakland, Calif.	E. N. Ewer and C. A. DePuy	1,688	100	No	$40	3	0	7/1	12	24	9
San Francisco Hospital	San Francisco	W. G. Moore and A. V. Pettit	2,174	100	Yes	[a]	2	2	7/1	12	...	...
Stanford University Hospitals	San Francisco	L. Enge	1,547	3	Yes	$25	1	2	7/1	12	11	5
University of California Hospital	San Francisco	F. W. Lynch	1,259	64	Yes	$25	1	3	7/1	12	10	8
Santa Clara County Hospital	San Jose, Calif.	A. Shufelt	1,060	100	Yes	$100	1	0	7/1	12	...	...
New Haven Hospital	New Haven, Conn.	A. H. Morse	1,446	34	Yes	$40	1	0	7/1	12	13	8
Columbia Hospital for Women and Lying-in Asylum	Washington, D. C.		3,666	..	Yes	None	2	4	1/1&7/1	18	13	2
Freedmen's Hospital (col.)	Washington, D. C.	J. W. Ross	1,639	85	Yes	[a]	1	1	10/1	12	68	16
Gallinger Municipal Hospital	Washington, D. C.	H. F. Kane	5,225	99	No	$30	2	1	7/1	12	277	127
Grady Hospital	Atlanta, Ga.	J. R. McCord and F. Eskridge	5,520	100	Yes	$50	4	2	6/20	12	72	28
University Hospital	Augusta, Ga.	R. Torpin	2,359	44	Yes	$45	1	1	7/1	24	66	18
Chicago Lying-in Hospital and Disp.	Chicago	F. L. Adair	3,762	22	Yes	$32	6	0	1/1&7/1	36	73	57
Presbyterian Hospital	Chicago	N. S. Heaney	2,665	22	Yes	$75	1	0	7/1	24	8	1
St. Luke's Hospital	Chicago	H. O. Jones	1,749	6	Yes	None	2	0	10/1	12	28	14
University of Chicago Clinics (See Chicago Lying-in Hosp. and Disp.)	Chicago											
Indianapolis City Hospital	Indianapolis	J. W. Hofmann and H. Beckman	1,586	88	Yes	$42	2	0	7/1	12	25	10
University Hospitals	Iowa City	E. D. Plass	2,755	86	Yes	$20	2	3	7/1	36	22	13
University of Kansas Hospitals	Kansas City	L. A. Calkins	952	66	Yes	$50	1	2	7/1	36	12	9
Charity Hospital	New Orleans		3,940	100	Yes	$25	4	0	7/1	24	49	42
Maryland General Hospital	Baltimore	E. H. Kloman and K. B. Boyd	722	35	....	$35	1	0	7/1	12	7	2
Mercy Hospital	Baltimore	A. Samuels and E. P. Smith	935	60	Yes	$25	1	0	9/1	12	16	2
St. Joseph's Hospital	Baltimore		1,164	28	Yes	$10	1	1	7/1	24	4	1
Boston City Hospital [2]	Boston	R. M. Green	5,719	94	Yes	[a]	2	6	Quart.	24	133	2
Carney Hospital	Boston	L. E. Phaneuf	719	7	Yes	None	1	2	1/1,5/1,9/1	12	9	1
University Hospital	Ann Arbor, Mich.	N. F. Miller	2,600	81	Yes	$25	2	2	7/1	48	54	38
City of Detroit Receiving Hospital [11]	Detroit	W. F. Seeley	1,213	100	Yes	$83	1	1	7/15	48	41	10
Grace Hospital	Detroit	B. Anderson	1,942	27	Yes	$50	1	1	9/1	12	5	1
Harper Hospital	Detroit	G. Kamperman	1,442	12	Yes	$25	1	2	7/1	36	...	...
Henry Ford Hospital	Detroit	J. P. Pratt	.....	..	Yes	$130	1	3	9/1	12	38	19
Herman Kiefer Hospital [11]	Detroit	W. F. Seeley	3,508	97	No	$125	2	0	7/1	12	89	47
Woman's Hospital	Detroit	H. M. Nelson and L. E. Daniels	4,014	1	Yes	$25	2	7	7/1	48	20	5
Minneapolis General Hospital [1]	Minneapolis	J. A. Urner	2,238	85	Yes	$25	2	0	1/1&7/1	36	24	13
University Hospitals [1]	Minneapolis	J. C. Litzenberg	1,360	12	Yes	$50	2	0	7/1	18	11	10
Ancker Hospital [1]	St. Paul	L. W. Barry	4,435	98	Yes	$50	1	0	7/1	36	35	34
Jewish Hospital	St. Louis	S. A. Weintraub and S. F. Abrams	1,102	25	Yes	$63	1	0	7/1	12	9	4
St. Louis City Hospital	St. Louis		3,257	100	Yes	$75	1	4	7/1	36	39	16
St. Louis Maternity Hospital	St. Louis	O. H. Schwarz	1,923	11	Yes	$25	2	5	7/1	36	26	20
St. Luke's Hospital	St. Louis	J. W. Records	1,486	16	Yes	$75	1	0	7/1	12	12	3
St. Mary's Group of Hospitals	St. Louis	W. H. Vogt	1,888	42	Yes	$25	6	0	7/1	24	18	7
University of Nebraska Hospital	Omaha	E. Sage	877	100	Yes	$50	1	0	7/1	12	12	11
Jewish Hospital	Brooklyn	L. S. Schwartz	3,795	24	Yes	$50	2	1	1/1&7/1	24	20	7
Kings County Hospital	Brooklyn	C. Gordon and R. Garlick	7,157	100	Yes	$15	3	2	7/1	18	11	3
Long Island College Hospital	Brooklyn	A. C. Beck	2,221	7	Yes	$22	1	2	7/1	12	9	2
Queens General Hospital	Jamaica, N. Y.	H. P. Mencken	2,560	100	Yes	$15	1	1	7/1	12	13	8
Bellevue Hospital [2]	New York City	W. E. Studdiford, Jr.	5,525	100	Yes	...	1	10	7/1	48	...	...
Flower-Fifth Avenue Hospital	New York City	H. B. Safford	1,880	5	Yes	$50	1	0	7/1	12	2	1
Lying-in Hospital	New York City	H. J. Stander	4,832	23	Yes	None	1	10	7/1	60	144	87
Metropolitan Hospital	New York City	H. B. Safford	2,788	100	Yes	$100	1	1	7/1	12	38	23
Sloane Hospital for Women	New York City	B. P. Watson	4,472	30	Yes	$50	2	2	7/1	48	...	...
Woman's Hospital	New York City	G. G. Ward	3,665	3	Yes	None	8	0	Quart.	24	36	13
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	K. M. Wilson	3,184	63	Yes	$42	1	2	7/1	12	16	8
Duke Hospital	Durham, N. C.	B. Carter	2,140	56	Yes	$42	1	4	7/1	48	83	49

Numerical and other references will be found on page 847.

5. OBSTETRICS AND GYNECOLOGY—(Continued)

c. OBSTETRICS-GYNECOLOGY (Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Huron Road Hospital	East Cleveland, O.	S. C. Runnels	1,713	2	Yes	$50	1	0	7/1	12	4	2
University of Oregon Medical School Hospitals	Portland	R. E. Watkins	1,259	100	Yes	$30	1	2	7/1	36	8	6
Hosp. of the University of Pennsylvania	Philadelphia	C. C. Norris	2,618	28	Yes	None	3	0	9/1	36	10	2
Kensington Hospital for Women	Philadelphia	E. A. Schumann	2,530	25	Yes	$25	3	0	1/1&7/1	24	44	32
Pennsylvania Hospital	Philadelphia	R. A. Kimbrough, Jr. and C. B. Lull	3,793	28	Yes	$20	3	0	1/1,7/1,9/1	12	17	6
Philadelphia General Hospital	Philadelphia		4,706	95	Yes	$100	1	0	7/1	12	...	...
Roper Hospital	Charleston, S. C.	A. J. Buist and L. A. Wilson	1,988	71	Yes	$40	1	0	7/1	12	57	13
Nashville General Hospital	Nashville, Tenn.	W. C. Dixon and M. S. Lewis	1,643	90	Yes	$35	1	1	7/1	24	17	3
Vanderbilt University Hospital	Nashville, Tenn.	L. E. Burch	675	29	Yes	$35	1	3	7/1	12	7	5
John Sealy Hospital	Galveston, Tex.	W. Cooke	1,070	50	Yes	$50	1	0	7/1	12	7	4
University of Virginia Hospital	University	T. J. Williams	1,144	30	Yes	$50	1	1	7/1	24	11	8
State of Wisconsin General Hospital	Madison	J. Harris	.....	85	Yes	$25	1	2	7/1	36	...	...
Milwaukee County Hospital	Wauwatosa, Wis.	E. H. Gramling	2,107	97	Yes	$100	1	0	7/16	12	46	14

6. SURGERY

a. GENERAL SURGERY

Hillman Hospital	Birmingham, Ala.	J. N. Mason and D. S. Moore	1,445	100	Yes	$100	2	0	7/1	12	155	41
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company	Fairfield, Ala.	L. Noland	2,514	..	Yes	$100	1	0	7/1	12	56	14
Fresno County General Hospital	Fresno, Calif.	J. H. Pettis	2,845	99	Yes	$90	2	0	7/1	12	150	49
Cedars of Lebanon Hospital	Los Angeles	S. Gendel	4,504	18	Yes	$75	1	0	7/1	12	83	43
Los Angeles County Hospital	Los Angeles	H. Shoemaker	4,363	100	Yes	$10	6	0	4/1&10/1	36	321	151
White Memorial Hospital	Los Angeles	G. Thomason	692	2	Yes	$90	1	0	7/1	36	29	10
Alameda County Hospital	Oakland, Calif.	L. P. Adams and C. A. Dukes	2,055	100	No	$40	1	3	7/1	12	162	55
San Bernardino County Charity Hosp.	San Bernardino, Calif.	C. G. Hilliard	631	100	Yes	$100	1	0	7/1	12	78	34
San Diego County General Hospital	San Diego, Calif.	M. C. Harding	4,080	100	Yes	$75	1	0	7/1	12	...	...
Hospital for Children	San Francisco	A. R. Kilgore	1,026	4	Yes	$25	1	0	7/1	12	11	2
Mary's Help Hospital	San Francisco	I. W. Thorne	1,347	5	Yes	$72	1	0	7/1	12	33	10
Mount Zion Hospital	San Francisco	H. Brunn	1,808	16	Yes	$50	1	0	6/15	12	46	17
St. Luke's Hospital	San Francisco	A. Weeks	1,620	8	Yes	$100	1	0	7/1	12	62	26
San Francisco Hospital [17]	San Francisco	H. Brunn and L. Eloesser	3,725	100	No	[a]	4	5	7/1	12	...	...
Stanford University Hospitals	San Francisco	E. Holman	1,641	3	Yes	$25	1	3	7/12	12	57	27
University of California Hospital	San Francisco	H. C. Naffziger	1,236	64	Yes	$25	1	7	7/1	12	40	29
Santa Clara County Hospital	San Jose, Calif.	D. R. Wilson	2,780	100	Yes	$155	1	0	7/1	12	...	...
Colorado General Hospital [20]	Denver	C. F. Hegner	661	61	Yes	$75	1	0	7/1	12	64	46
Grace Hospital	New Haven, Conn.	T. Russell	1,951	10	Yes	$90	1	1	7/1	24	73	20
New Haven Hospital [17]	New Haven, Conn.	S. C. Harvey	2,878	34	Yes	$40	1	6	1/1&7/1	12	117	58
Central Dispensary and Emergency Hospital	Washington, D. C.	J. F. Mitchell	4,832	17	Yes	$50	1	2	6/15	24	...	...
Freedmen's Hospital (col.)	Washington, D. C.	E. L. Howes	904	85	Yes	[a]	1	1	7/1	12	55	16
Gallinger Municipal Hospital	Washington, D. C.	C. S. White	1,997	99	No	$30	1	3	7/1	12	137	76
Garfield Memorial Hospital	Washington, D. C.	H. H. Kerr	3,574	..	Yes	$50	1	1	7/1	12	123	77
Georgetown University Hospital	Washington, D. C.	J. A. Cahill	2,057	6	Yes	[a]	1	0	7/1	12	27	14
Grady Hospital	Atlanta, Ga.		3,146	100	Yes	$50	2	3	6/20	12	260	108
University Hospital	Augusta, Ga.	J. H. Sherman	2,648	44	Yes	$45	1	2	7/1	12	150	39
Augustana Hospital	Chicago	N. M. Percy	1,793	16	Yes	None	1	0	1/1	12	75	16
Passavant Memorial Hospital	Chicago	L. Davis	1,617	7	Yes	None	3	0	1/1	12	42	21
Presbyterian Hospital	Chicago	V. C. David	2,062	22	Yes	$62	2	0	1/1&7/1	24	68	41
Provident Hospital (col.)	Chicago	C. G. Roberts	1,682	63	Yes	$50	1	0	9/1	12	66	38
Research and Educational Hospital [a]	Chicago	E. Oldberg	940	100	Yes	$50	1	2	9/1	36	54	32
St. Luke's Hospital	Chicago	H. E. Jones	4,830	6	Yes	None	5	0	7/1	12	112	69
University of Chicago Clinics	Chicago	D. B. Phemister	1,562	38	Yes	$25	1	4	1/1&7/1	60	63	40
Wesley Memorial Hospital	Chicago	R. W. McNealey	1,954	23	Yes	$75	1	0	1/1&7/1	12	39	18
Evanston Hospital	Evanston, Ill.	F. Christopher	1,937	10	Yes	$83	1	0	7/1	24	54	45
Indianapolis City Hospital	Indianapolis	M. N. Hadley	1,266	88	Yes	$42	2	0	7/1	12	123	30
Indiana University Hospital	Indianapolis	W. D. Gatch	1,445	82	Yes	$33	2	0	7/1	12	39	25
University Hospitals	Iowa City	F. R. Peterson	2,889	86	Yes	$20	1	6	7/1	60	138	97
University of Kansas Hospitals	Kansas City, Kan.	T. G. Orr	1,051	66	Yes	$50	4	0	7/1	48	71	30
St. Joseph's Hospital	Lexington, Ky.		1,154	2	No	$50	1	1	7/1	12	59	15
Louisville City Hospital	Louisville, Ky.	C. E. Bird	5,404	90	Yes	$14	1	18	7/1	48	301	60
St. Joseph Infirmary	Louisville, Ky.	J. D. Hancock	3,209	15	Yes	$50	1	0	7/1	12	86	18
Charity Hospital	New Orleans	U. Maes & A. Ochsner	3,804	100	Yes	$25	3	6	7/1	48	190	99
Touro Infirmary	New Orleans	I. Cohn	3,600	35	Yes	$25	1	0	7/1	12	...	...
Baltimore City Hospitals	Baltimore	A. M. Shipley	2,617	99	Yes	$17	1	4	7/1	24	248	89
Bon Secours Hospital	Baltimore	E. Novak	385	25	Yes	$50	1	1	7/1	12	8	5
Church Home and Infirmary	Baltimore	T. S. Cullen	1,967	25	Yes	$20	1	2	7/1	12	50	24
Johns Hopkins Hospital	Baltimore	D. B. Lewis	2,091	43	Yes	None	1	6	7/1&9/1	12-84	112	56
Maryland General Hospital	Baltimore	R. P. Bay	2,374	35	Yes	$35	1	1	7/1	24	115	15
Mercy Hospital	Baltimore	W. D. Wise	1,979	60	Yes	$50	1	4	9/1	24	61	18
Provident Hospital and Free Dispensary (col.)	Baltimore	J. M. T. Finney, Jr.	657	73	Yes	$25	1	2	10/15	48	49	9
St. Agnes' Hospital	Baltimore	G. A. Stewart	2,235	32	Yes	None	1	2	7/1&10/1	12	73	6
St. Joseph's Hospital	Baltimore		1,376	28	Yes	$10	2	2	7/1	24	141	21
Sinai Hospital	Baltimore	A. Ullman	1,198	37	Yes	$50	1	3	7/1	12	28	11
South Baltimore General Hospital	Baltimore	C. W. Maxson	2,914	46	Yes	$50	1	2	7/1	12	92	11
Union Memorial Hospital	Baltimore	J. M. T. Finney, Jr.	3,968	16	Yes	$12	1	5	7/1	12	118	40
University Hospital	Baltimore	A. M. Shipley	2,597	47	Yes	None	1	5	7/1	24	113	40
West Baltimore General Hospital	Baltimore	C. Marvel	899	36	No	$20	1	2	7/1	12	47	17
Beth Israel Hospital	Boston	C. G. Mixter	2,305	39	Yes	$39	1	1	1/1	12	108	43
Boston City Hospital [7]	Boston	J. J. Walker	10,086	94	Yes	[a]	5	1	Varies	12	542	84
Children's Hospital	Boston	W. E. Ladd	1,525	1	Yes	$56	1	1	9/1	12	49	36
Massachusetts General Hospital	Boston	E. B. Churchill and A. W. Allen	3,839	44	Yes	$42	2	2	1/1&7/1	24	154	88
Massachusetts Memorial Hospitals	Boston	H. M. Clute	3,169	31	Yes	$91	2	0	8/1	24	73	37
Peter Bent Brigham Hospital	Boston	E. O. Cutler	2,830	46	Yes	$42	1	5	Varies	16	123	68
Cambridge Hospital	Cambridge, Mass.		2,474	11	Yes	$62	1	0	7/1	12	47	29
Truesdale Hospital	Fall River, Mass.	P. E. Truesdale	542	18	Yes	None	4	0	1/1&7/1	12	26	7
Memorial Hospital	Worcester, Mass.	W. C. Seelye	2,370	14	Yes	$100	1	0	9/1	12	69	29
University Hospital	Ann Arbor, Mich.	F. Coller	2,979	81	Yes	$25	8	14	7/1	36	159	71
Alexander Blain Hospital	Detroit	A. W. Blain and I. G. Downer	1,145	...	Yes	$75	3	0	7/1	24	46	18
City of Detroit Receiving Hospital	Detroit	C. J. Johnston and C. F. Vale	5,607	100	Yes	$50	1	5	7/15	36	336	67
Grace Hospital	Detroit	F. A. Kelly	4,236	27	Yes	$50	1	1	9/1	12	235	81
Harper Hospital	Detroit	C. D. Brooks	10,014	12	No	$25	1	7	7/1	36	...	...
Henry Ford Hospital	Detroit	R. D. McClure	.....	..	Yes	$130	1	19	9/1	12	100	40
Providence Hospital	Detroit	G. M. O'Brien	6,144	10	No	$100	1	0	7/1	12	156	15

Numerical and other references will be found on page 847.

6. SURGERY—(Continued)

a. GENERAL SURGERY (Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Eloise Hospital (Dr. William J. Seymour Hospital)	Eloise, Mich.	C. R. Defever	1,834	98	Yes	$125	1	0	7/1	12	103	59
Hurley Hospital	Flint, Mich.	R. S. Morrish	1,670	60	No	$100	1	0	7/1	12	86	32
Butterworth Hospital	Grand Rapids, Mich.	G. H. Southwick	2,869	15	No	$125	1	0	7/15	36	109	35
Minneapolis General Hospital [1]	Minneapolis	A. A. Zierold	1,652	85	Yes	$25	7	0	1/1&7/1	42	181	95
University Hospitals [1]	Minneapolis	O. H. Wangensteen	1,355	12	Yes	$50	5	0	7/1	36	85	62
Ancker Hospital	St. Paul	A. R. Colvin	3,536	98	Yes	$50	1	2	7/1	36	167	119
St. Louis County Hospital	Clayton, Mo.	F. W. Bailey	1,093	98	Yes	$50	1	0	7/1	12	90	59
St. Mary's Hospital	Kansas City, Mo.	J. E. Castles	1,300	15	No	$50	1	0	7/1	12	38	33
Barnes Hospital [2]	St. Louis	E. A. Graham	3,264	17	Yes	$25	1	7	7/1	36	205	131
DePaul Hospital	St. Louis	J. W. Thompson	1,517	22	...	$25	1	1	7/1	24	58	16
Homer G. Phillips Hospital for Colored	St. Louis	J. W. Stewart	1,462	100	Yes	$75	1	1	7/1	36	58	10
Jewish Hospital	St. Louis	M. W. Myer	1,176	25	Yes	$42	1	1	7/1	12	55	23
St. Louis City Hospital	St. Louis	.....	3,193	100	Yes	$75	6	4	7/1	36	243	92
St. Luke's Hospital	St. Louis	I. R. Long	2,292	16	Yes	$75	1	0	7/1	12	67	35
St. Mary's Group of Hospitals	St. Louis	W. T. Coughlin	2,414	42	Yes	$25	6	0	7/1	34	122	63
Cooper Hospital	Camden, N. J.	P. M. Mecray	1,871	44	Yes	$100	1	0	12/1	36	148	32
Jersey City Hospital	Jersey City, N. J.	E. Burke	4,016	90	Yes	$100	3	2	10/1	24	202	29
Mountainside Hospital	Montclair, N. J.	.....	971	8	Yes	$100	1	0	1/1	12	75	13
Burlington County Hospital	Mount Holly, N. J.	H. E. Taylor	900	36	Yes	$100	1	0	7/1	12	47	22
Albany Hospital	Albany, N. Y.	J. L. Donhauser	2,810	2	Yes	$25	1	2	7/1	36	86	61
Coney Island Hospital	Brooklyn	D. A. McAteer	3,216	100	Yes	$100	1	0	7/1	12	160	53
Cumberland Hospital	Brooklyn	M. N. Foote	1,553	100	Yes	$100	1	1	7/1	12	51	23
Jewish Hospital	Brooklyn	L. M. Davidoff	2,886	24	Yes	...	1	3	1/1&7/1	24	121	36
Kings County Hospital	Brooklyn	R. Barber and E. Fiske	14,737	100	Yes	$15	3	2	1/1&7/1	12	717	139
Long Island College Hospital	Brooklyn	E. Goetsch	2,047	7	Yes	$22	1	3	7/1	12	67	7
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn	.....	1,724	17	Yes	None	1	0	7/1	12	86	21
Buffalo City Hospital	Buffalo	H. A. Smith	2,035	65	Yes	$68	2	2	7/1	60	128	20
Buffalo General Hospital	Buffalo	T. Wright	3,217	3	Yes	$25	1	4	7/1	12	157	64
Deaconess Hospital	Buffalo	.....	3,400	1	....	$100	1	0	7/1	12	101	37
Millard Fillmore Hospital	Buffalo	G. Critchlow	1,705	17	Yes	$25	1	1	7/1	12	76	28
Clifton Springs Sanitarium and Clinic	Clifton Springs, N. Y.	A. S. Taylor	702	10	No	$50	1	0	7/1	36	17	11
Meadowbrook Hospital	Hempstead, N. Y.	A. S. Warinner and C. A. Hettesheimer	1,030	89	No	$75	2	0	7/1	12	100	46
Queens General Hospital	Jamaica, N. Y.	F. N. Dealy	3,017	100	Yes	$15	1	1	7/1	12	190	151
Charles S. Wilson Memorial Hospital [2]	Johnson City, N. Y.	C. B. Whittemore	1,887	2	Yes	$75	1	0	7/1	36	28	20
Bellevue Hospital [2]	New York City	.....	10,108	100	Yes	$83	2	6	1/1&7/1	30	...	...
Flower-Fifth Avenue Hospital	New York City	C. A. Burrett	2,364	5	Yes	$50	2	0	7/1	12	125	28
Metropolitan Hospital	New York City	J. H. Fobes	1,195	100	Yes	$100	2	0	7/1	12	84	5
Montefiore Hosp. for Chronic Diseases	New York City	A. A. Berg	106	88	Yes	$100	1	2	1/1&7/1	12	23	20
Mount Sinai Hospital [18]	New York City	R. Colt and J. H. Garlock	.....	55	Yes	$125	3	3	1/1&7/1	12	181	121
New York Hospital	New York City	G. J. Heuer	4,473	23	Yes	None	3	13	7/1	72	108	46
New York Polyclinic Medical School and Hospital	New York City	.....	1,973	15	Yes	None	8	0	Quart.	24	89	31
New York Post-Graduate Medical School and Hospital	New York City	T. H. Russell	2,829	13	Yes	$30	2	16	Quart.	24	101	40
New York Society for the Relief of the Ruptured and Crippled	New York City	C. G. Burdick	2,040	10	Yes	$20	4	0	Quart.	12	24	11
Presbyterian Hospital	New York City	A. O. Whipple	3,424	30	Yes	$83	2	11	7/1	12	...	...
Genesee Hospital	Rochester, N. Y.	C. Sumner	2,532	14	Yes	$75	1	0	7/1	12	90	33
Rochester General Hospital	Rochester, N. Y.	H. L. Prince	4,619	21	Yes	$50	1	1	7/1	12	96	54
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	J. J. Norton	2,680	63	Yes	$42	1	5	7/1	12	198	129
Hospital of the Good Shepherd	Syracuse, N. Y.	A. G. Swift	3,625	2	No	$83	1	1	7/1	12	63	35
Grasslands Hospital	Valhalla, N. Y.	G. C. Adie	691	86	Yes	$75	1	2	7/1	36	67	48
Duke Hospital	Durham, N. C.	D. Hart	1,823	56	Yes	$42	1	8	7/1	48	95	50
Watts Hospital	Durham, N. C.	F. Roberson	2,696	23	Yes	$50	1	1	7/1	12	43	12
Rutherford Hospital	Rutherfordton, N. C.	M. H. Biggs	604	27	Yes	None	1	0	7/1	12	8	2
City Memorial Hospital	Winston-Salem, N. C.	A. deT. Valk	1,219	39	Yes	$50	1	1	7/1	36	67	31
City Hospital	Akron, O.	L. W. Reynolds	5,097	30	Yes	$105	1	3	7/1	36	174	88
St. Thomas Hospital	Akron, O.	E. C. Banker	1,075	20	No	$40	1	0	7/1	12	45	28
Mercy Hospital	Canton, O.	H. M. Schuffell	2,631	28	No	$100	1	0	7/1	12	113	29
Cincinnati General Hospital	Cincinnati	M. R. Reid	2,839	87	Yes	[a]	2	14	9/1	72	266	110
Deaconess Hospital	Cincinnati	W. R. Griess	855	5	No	$75	1	0	7/1	12	36	6
Good Samaritan Hospital	Cincinnati	J. Maloney	4,188	5	No	$35	4	0	7/1	36	125	25
Jewish Hospital	Cincinnati	J. L. Ransohoff	2,504	20	Yes	$45	2	0	7/1	12	34	13
City Hospital	Cleveland	C. H. Lenhart	2,325	97	Yes	$42	2	0	1/1&7/1	18	294	142
Mount Sinai Hospital	Cleveland	M. E. Blahd	2,348	20	Yes	$60	2	0	7/1	12	69	16
St. Alexis Hospital	Cleveland	J. F. Corrigan	3,520	23	Yes	$60	3	0	7/1	12	104	25
St. John's Hospital	Cleveland	G. P. O'Malley	1,160	18	No	$40	2	0	7/1	12	82	13
St. Luke's Hospital	Cleveland	C. A. Bowers	3,355	18	Yes	$25	1	3	7/1	48	165	34
St. Vincent Charity Hospital	Cleveland	H. B. Wright	4,431	35	Yes	...	1	0	7/1	12	216	47
University Hospitals [1]	Cleveland	C. H. Lenhart	4,789	35	Yes	$25	3	4	7/1	36	204	114
Starling-Loving University Hospital	Columbus, O.	.....	1,504	58	Yes	$25	2	4	7/1	24	93	49
Miami Valley Hospital	Dayton, O.	R. Austin	3,366	23	No	$75	1	0	7/1	12	143	33
Huron Road Hospital	East Cleveland, O.	H. L. Frost	1,699	2	Yes	$50	1	0	7/1	12	78	20
St. Elizabeth's Hospital	Youngstown, O.	J. M. Ranz	3,014	3	No	$50	1	1	7/1	12	112	14
St. Anthony Hospital	Oklahoma City	.....	3,990	11	No	$50	1	1	7/1	12	87	22
State University and Crippled Children's Hospitals	Oklahoma City	R. M. Howard	1,375	71	Yes	$50	1	0	7/1	12	81	36
University of Oregon Medical School Hospitals	Portland	T. M. Joyce	879	100	Yes	$30	1	2	7/1	36	78	44
Abington Memorial Hospital	Abington, Pa.	D. B. Pfeiffer and W. M. Sylvis	1,580	25	Yes	None	1	0	7/1	12	72	26
St. Luke's Hospital	Bethlehem, Pa.	W. L. Estes, Jr.	.....	19	Yes	$50	1	0	7/1	12	...	...
George F. Geisinger Memorial Hospital	Danville, Pa.	H. L. Foss	1,756	27	Yes	$50	1	0	9/1	12	90	33
Germantown Dispensary and Hospital	Philadelphia	C. F. Mitchell and E. B. Hodge	2,375	20	Yes	$130	1	0	7/1	12	251	34
Graduate Hospital of the University of Pennsylvania	Philadelphia	W. Bates & W. E. Lee	1,191	33	Yes	None	2	0	7/1	12	106	28
Jewish Hospital	Philadelphia	.....	2,734	31	No	None	1	0	6/15	12	104	55
Pennsylvania Hospital	Philadelphia	W. E. Lee and J. B. Flick	1,787	28	Yes	$20	2	0	1/1	12	94	54
Philadelphia General Hospital	Philadelphia	.....	2,580	95	Yes	$100	2	0	7/1	12	...	...
Temple University Hospital	Philadelphia	W. W. Babcock	1,638	38	Yes	$40	2	0	7/1	36	70	32
Allegheny General Hospital	Pittsburgh	O. C. Gaub	1,997	54	Yes	$85	1	0	9/1	12	112	16
Children's Hospital	Pittsburgh	E. W. Meredith	563	50	Yes	$35	1	0	7/1	12	15	5
St. Francis Hospital	Pittsburgh	.....	2,529	14	Yes	$50	1	0	9/1	12	56	5
Reading Hospital	Reading, Pa.	W. A. Lebkicher	1,346	42	Yes	$83	1	0	7/1	12	103	68
Robert Packer Hospital	Sayre, Pa.	D. Guthrie	3,005	50	No	$75[c]	2	0	7/1	24	65	30
Roper Hospital	Charleston, S. C.	R. S. Cathcart	1,698	71	Yes	$40	2	0	7/1	12	106	37
Baroness Erlanger Hospital	Chattanooga, Tenn.	.....	2,645	5	No	$100	1	2	7/1	12	161	40
John Gaston Hospital	Memphis, Tenn.	J. L. McGehee	1,923	97	Yes	$32	1	1	7/1	12	176	30
Nashville General Hospital	Nashville, Tenn.	L. W. Edwards	1,174	90	Yes	$35	1	1	7/1	24	87	24

Numerical and other references will be found on page 847.

6. SURGERY—(Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
a. GENERAL SURGERY (Continued)												
Vanderbilt University Hospital	Nashville, Tenn.	B. Brooks	2,006	29	Yes	$35	1	3	7/1	12	118	62
Baylor University Hospital	Dallas, Tex.	C. W. Flynn	4,471	20	Yes	$50	1	1	7/1	12	110	36
Parkland Hospital	Dallas, Tex.	L. Hudson	2,317	91	Yes	$10	2	2	1/1&7/1	12	...	...
John Sealy Hospital	Galveston, Tex.	A. O. Singleton	1,771	50	Yes	$50	1	0	7/1	12	...	...
Norfolk General Hospital	Norfolk, Va.	.....	3,514	26	Yes	$50	1	0	7/1	12	65	17
Medical College of Virginia, Hospital Division	Richmond	I. A. Bigger	2,745	5	Yes	$50	2	5	7/1	12	194	56
University of Virginia Hospital	University	E. P. Lehman	1,571	30	Yes	[a]	1	1	7/1	48	111	53
Charleston General Hospital	Charleston, W. Va.	J. E. Cannaday	2,681	10	Yes	$25	1	0	7/1	36	91	21
State of Wisconsin General Hospital	Madison	E. R. Schmidt	.....	85	Yes	$25	3	5	7/1	36	...	...
St. Joseph's Hospital	Milwaukee	F. Stratton	2,539	13	....	$40	1	0	7/1	12	87	15
St. Mary's Hospital	Milwaukee	W. C. F. Witte	3,009	7	Yes	$90	1	0	7/1	12	76	26
Milwaukee County Hospital	Wauwatosa, Wis.	F. B. McMahon	4,967	97	Yes	$100	3	0	7/16	12	114	57
b. NEUROSURGERY												
University of California Hospital	San Francisco	H. C. Naffziger	410	64	Yes	$25	1	0	7/1	12	25	15
Presbyterian Hospital	Chicago	A. Verbrugghen	329	22	Yes	None	1	0	7/1	24	15	8
Research and Educational Hospital [2]	Chicago	E. Oldberg	188	100	Yes	$50	1	0	9/1	24	30	30
Boston City Hospital	Boston	D. Munro	419	94	Yes	None	1	1	Varies	36	65	9
Massachusetts General Hospital	Boston	W. J. Mixter	151	44	Yes	$42	1	0	1/1	12	33	15
Henry Ford Hospital	Detroit	A. S. Crawford	.....	..	Yes	$130	1	0	9/1	12	36	10
Jewish Hospital	Brooklyn	L. M. Davidoff	14	24	Yes	$50	1	0	1/1	12	3	3
Kings County Hospital	Brooklyn	E. J. Browder	.....	100	Yes	$15	1	1	7/1	24	169	86
Neurological Institute of New York	New York City	B. P. Stookey	718	8	Yes	$40	1	3	Varies	36	...	...
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	W. P. Van Wagenen.	335	63	Yes	$42	1	0	7/1	12	...	...
Hosp. of the University of Pennsylvania	Philadelphia	F. C. Grant	198	28	Yes	None	1	0	7/1	12	51	33
Temple University Hospital [1,2]	Philadelphia	T. S. Fay	591	43	Yes	$40	1	0	7/1	36	54	24
Medical College of Virginia, Hospital Division	Richmond	C. C. Coleman	1,135	5	Yes	$50	1	1	7/1	12	108	54
c. THORACIC SURGERY												
San Francisco Hospital [2]	San Francisco	.....	.....	100	....	[a]	1	0	7/1	12	...	...
Norwich State Tuberculosis Sanatorium (Uncas on Thames)	Norwich, Conn.	R. G. Urquhart	150	...	Yes	$150	1	1	7/1	24	10	9
City of Chicago Municipal Tuberculosis Sanitarium	Chicago	K. J. Henrichsen	.....	100	Yes	$100	2	0	7/1	24	...	...
Sanatorium Division of the Boston City Hospital	Boston	H. Binney	579	100	No	$150	1	0	Varies	12	...	...
University Hospital	Ann Arbor, Mich.	J. Alexander	365	81	Yes	$25	6	0	7/1	60	25	19
Homer Folks Tuberculosis Hospital	Oneonta, N. Y.	E. F. Butler	105	90	Yes	$100	1	1	10/1	36	3	2
Sea View Hospital [2]	Staten Island, N. Y.	P. N. Corylios	475	100	No	$100	4	1	1/1&7/1	18	65	27
City Hospital	Cleveland	.....	.....	97	Yes	$42	1	0	7/1	12	...	...
d. INDUSTRIAL SURGERY												
Indianapolis City Hospital	Indianapolis	M. N. Hadley	807	88	....	$42	1	0	7/1	12	75	10
e. FRACTURES												
City of Detroit Receiving Hospital	Detroit	A. D. Laferte and A. G. Goetz	1,295	100	Yes	$83	1	1	7/15	24	63	6
Rhode Island Hospital	Providence	M. S. Danforth	569	39	Yes	$50	1	0	9/1	12	...	...
f. PLASTIC SURGERY												
Kings County Hospital	Brooklyn	W. A. Coakley	.....	100	Yes	$15	1	0	7/1	12	19	1
Graduate Hospital of the University of Pennsylvania [6]	Philadelphia	R. H. Ivy	.....	33	Yes	None	1	0	7/1	12	...	...
g. ANESTHESIA												
Hartford Hospital	Hartford, Conn.	R. M. Tovell	11,500	4	....	$50	7	0	1/1&7/1	24	545	247
University of Chicago Clinics	Chicago	H. Livingstone	6,838	38	....	None	1	3	1/1&7/1	12	241	170
Methodist Episcopal Hospital	Indianapolis	J. M. Whitehead	22,200	11	....	$100	1	2	7/1	24	616	142
Massachusetts General Hospital	Boston	H. K. Beecher	15,630	44	....	$42	1	0	1/1	12	426	221
Massachusetts Memorial Hospitals	Boston	E. B. Ferguson	7,544	31	....	$50	2	0	1/1&7/1	12	256	140
Harper Hospital	Detroit	F. J. Murphy	18,803	12	....	$25	1	0	7/1	12	572	139
St. Mary's-Kahler Hospitals (Mayo Foundation) [1]	Rochester, Minn.	J. S. Lundy	.....	..	....	$75	6	0	Quart.	36	412	330
Jersey City Hospital	Jersey City, N. J.	W. Gleeson	18,221	90	....	None	4	0	1/1&7/1	12	1,387	200
Bellevue Hospital [2]	New York City	E. A. Rovenstine	62,112	100	....	$50	12	0	Varies	36	3,485	198
Flower-Fifth Avenue Hospital	New York City	D. E. Brace	8,300	5	....	$50	1	0	7/1	12	276	68
Metropolitan Hospital	New York City	D. E. Brace	10,847	100	....	$100	3	0	7/1	12	1,017	187
N. Y. Polyclinic Med. School and Hosp.	New York City	.....	8,981	15	....	$101	3	0	1/1&11/1	24	256	60
Grasslands Hospital	Valhalla, N. Y.	R. B. Hammond	5,892	86	....	$95	1	1	Varies	36	450	229
Huron Road Hospital	East Cleveland, O.	R. J. Whitacre	6,977	2	....	...	1	0	.....	..	211	72
State University and Crippled Children's Hospitals	Oklahoma City	J. A. Moffitt	6,455	71	....	$50	3	0	7/1	12	321	149
Hahnemann Hospital	Philadelphia	J. M. Godfrey	11,343	31	....	$75	1	0	9/1	12	588	166
Rhode Island Hospital	Providence	F. H. Mathews	10,890	39	....	$50	1	0	Varies	12	957	340
State of Wisconsin General Hospital	Madison	R. M. Waters	11,689	85	....	$25	3	3	7/1	36	428	226
Columbia Hospital	Milwaukee	H. Cunningham	3,375	14	....	$50	1	0	7/1	12	110	57

7. ORTHOPEDIC SURGERY

Children's Hospital	Los Angeles	J. C. Wilson	359	45	Yes	$90	1	0	7/1	12	3	2
Los Angeles County Hospital	Los Angeles	J. C. Wilson	4,837	100	Yes	$10	5	0	4/1&10/1	24	172	133
Orthopaedic Hospital	Los Angeles	C. L. Lowman	2,175	57	Yes	$50	4	0	7/1	36	2	1
San Francisco Hospital [1,2]	San Francisco	F. Linde	1,100	100	No	[a]	1	0	7/1	12	...	...
Shriners Hospital for Crippled Children	San Francisco	S. L. Haas	296	100	Yes	$50	1	0	7/1	12	0	0
University of California Hospital	San Francisco	H. C. Naffziger	217	64	Yes	$25	2	0	7/1	12	1	1
Children's Hospital	Denver	.....	.....	7	Yes	$50	1	1	7/1	24	...	...
New Haven Hospital	New Haven, Conn.	A. Bassin	240[4]	34	Yes	$40	1	0	7/1	12	10	2
Cook County Hospital	Chicago	P. Lewin	695	100	Yes	$25	2	0	1/1&7/1	12	26	5
Research and Educational Hospital [2]	Chicago	H. B. Thomas	592	100	Yes	$50	1	1	7/1	36	5	4
Shriners Hospital for Crippled Children	Chicago	B. H. Moore	205	100	Yes	$65	1	0	7/1	12	0	0
University of Chicago Clinics	Chicago	E. L. Compere	618	38	Yes	None	1	3	1/1&7/1	36	3	3
Indiana University Hospitals	Indianapolis	G. J. Garceau and L. A. Ensminger	1,069	82	Yes	$33	1	1	7/1	12	11	7
University Hospitals	Iowa City	A. Steindler	3,779	86	Yes	$20	1	7	7/1	36	9	1
Charity Hospital	New Orleans	H. T. Simon and P. A. McIlhenny	438	100	Yes	$25	1	0	7/1	24	14	5
Shriners Hospital for Crippled Children	Shreveport, La.	H. A. Durham	194	100	Yes	$125	1	0	Varies	12	0	0
James Lawrence Kernan Hospital	Baltimore	C. J. Frankel	187	95	Yes	$92	1	0	7/1	12	2	0
Johns Hopkins Hospital	Baltimore	G. E. Bennett	444	43	Yes	None	1	1	7/1&9/1	12-36	5	1

Numerical and other references will be found on page 847.

7. ORTHOPEDIC SURGERY—(Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Boston City Hospital	Boston	O. J. Hermann	1,383	94	Yes	[a]	1	1	Varies	12	43	0
Children's Hospital	Boston	F. R. Ober	416	1	Yes	None	1	0	8/1	12	1	0
Massachusetts General Hospital	Boston	M. N. Smith-Petersen	438	44	Yes	$42	1	0	1/1	12	3	0
Shriners Hospital for Crippled Children	Springfield, Mass	R. N. Hatt	415	100	Yes	$25	1	0	7/1	12	3	1
Henry Ford Hospital	Detroit	C. L. Mitchell	.....	...	Yes	$130	1	3	9/1	12	9	1
Gillette State Hospital for Crippled Children	St. Paul	C. C. Chatterton	764	100	Yes	$100	1	0	7/1	12	8	6
State Hospital for Crippled Children (Unit of University Hospitals)	Columbia, Mo	W. J. Stewart	612	3	Yes	$50	1	0	7/1	12	3	0
St. Mary's Group of Hospitals	St. Louis	P. Hoffman	97	42	Yes	$25	1	0	7/1	34	7	4
Shriners Hosp. for Crippled Children	St. Louis	C. H. Crego, Jr.	538	100	Yes	$135	1	0	7/1	12	1	0
Jersey City Hospital	Jersey City, N. J.	S. Sprague and W. G. Doran	1,669	90	Yes	$100	1	1	1/1&7/1	12	65	2
New Jersey Orthopaedic Hospital and Dispensary	Orange	H. W. Smith	372	27	Yes	$50	2	0	Varies	18	2	1
Kings County Hospital	Brooklyn	J. L'Episcopo	1,276	100	Yes	$15	1	1	1/1&7/1	36	23	7
Long Island College Hospital	Brooklyn	J. C. Rushmore	458	7	Yes	$22	1	1	7/1	12	6	1
Bellevue Hospital [2]	New York City	A. Krida	115	100	Yes	...	1	1	1/1&7/1	18	...	...
Hospital for Joint Diseases	New York City	.....	4,169	52	Yes	$25	9	0	1/1	36	21	5
Metropolitan Hospital	New York City	A. H. Bingham	639	100	Yes	$75	1	0	7/1	12	...	...
New York Orthopaedic Dispensary and Hospital [1, 2]	New York City	B. P. Farrell	1,175	2	Yes	$50	8	0	Quart.	24	2	2
New York Post-Graduate Medical School and Hospital	New York City	C. Ogilvy	220	13	Yes	$90	1	0	7/1	12	...	...
New York Society for the Relief of the Ruptured and Crippled	New York City	P. D. Wilson	1,543	10	Yes	$20	8	0	1/1&7/1	24	5	1
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	R. P. Schwartz	564	63	Yes	$42	1	0	7/1	12	...	...
Sea View Hospital	Staten Island, N. Y.	D. Bosworth	197	100	No	$100	2	0	1/1&7/1	12	35	10
New York State Reconstruction Home	West Haverstraw	C. Wallace	405	95	Yes	$100	1	2	1/1&7/1	18	4	0
Duke Hospital	Durham, N. C.	D. Hart	629	56	Yes	$42	1	0	7/1	48	2	0
Cincinnati General Hospital	Cincinnati	A. H. Freiberg	424	87	Yes	[a]	1	1	7/1	24	15	7
Mount Sinai Hospital [12]	Cleveland	R. S. Reich	2,087	20	Yes	$60	1	0	7/1	12	2	2
University Hospitals	Cleveland	M. Harbin	460	35	Yes	$25	1	0	7/1	12	...	...
State University and Crippled Children's Hospitals	Oklahoma City	P. C. Colonna	1,310	71	Yes	$50	3	0	7/1	36	13	4
Sisler Hospital	Tulsa, Okla	W. Sisler	635	..	Yes	$50	1	0	7/1	12	...	...
Shriners Hospital for Crippled Children	Portland	B. M. Pease	235	100	Yes	$25	1	0	7/1	12	...	...
State Hospital for Crippled Children	Elizabethtown, Pa	J. S. Donaldson	353	100	Yes	$100	2	0	7/1	24	4	2
Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases	Philadelphia	A. B. Gill and D. P. Willard	263	31	Yes	$40	1	0	7/1	12	1	0
Temple University Hospital	Philadelphia	J. R. Moore	523	38	Yes	$40	2	0	7/1	36	9	3
Robert Packer Hospital	Sayre, Pa	T. Outland	278	50	No	$75[c]	1	0	9/1	12	3	0
Willis C. Campbell Clinic [1]	Memphis, Tenn	W. C. Campbell	974	11	Yes	$50	5	0	1/1&7/1	36	6	1
Parkland Hospital	Dallas	R. Jackson	399	91	Yes	$10	1	0	7/1	12	...	...
Texas Scottish Rite Hospital for Crippled Children	Dallas	W. B. Carrell	847	100	Yes	$100	1	0	7/1	12	1	0
University of Virginia Hospital	University	R. V. Funsten	518	30	Yes	$33	1	1	7/1	12	10	4
Children's Orthopedic Hospital	Seattle	H. J. Wyckoff	381	52	Yes	$100	1	0	7/1	12	3	3
State of Wisconsin General Hospital	Madison	R. Burns	.....	85	Yes	$25	3	2	7/1	36	...	...
Milwaukee County Hospital	Wauwatosa, Wis	C. C. Schneider	536	97	Yes	$100	1	0	7/16	12	...	...

8. UROLOGY

Hillman Hospital	Birmingham, Ala	W. F. Scott	480	100	Yes	$40	1	0	7/1	12	36	9
Los Angeles County Hospital	Los Angeles	J. J. Crane	2,601	100	Yes	$10	6	0	4/1&10/1	36	182	71
San Francisco Hospital [1]	San Francisco	.....	654	100	No	[a]	1	0	7/1	12	...	...
Stanford University Hospital	San Francisco	J. R. Dillon	471	3	Yes	$25	1	0	7/1	12	10	3
University of California Hospital	San Francisco	H. C. Naffziger	495	64	Yes	$25	1	0	7/1	12	25	15
New Haven Hospital	New Haven, Conn	C. L. Deming	199[d]	34	Yes	$40	1	0	7/1	12	19	7
Gallinger Municipal Hospital	Washington, D. C.	W. P. Herbst	423	99	No	$30	1	0	7/1	12	55	14
Grady Hospital	Atlanta, Ga	M. K. Bailey	543	100	Yes	$50	1	0	6/20	12	48	14
University of Chicago Clinics [2]	Chicago	C. B. Huggins	.....	17	Yes	$25	1	0	7/1	12	9	6
Indianapolis City Hospital	Indianapolis	W. E. Tinney	402	88	Yes	$42	1	0	7/1	12	53	24
University Hospitals	Iowa City	N. G. Alcock	1,400	86	Yes	$20	1	0	7/1	36	133	75
Charity Hospital	New Orleans	P. J. Kahle and J. G. Pratt	1,128	100	Yes	$25	1	2	7/1	24	93	51
Touro Infirmary	New Orleans	W. A. Reed	.....	35	Yes	$25	1	0	7/1	12	...	...
Johns Hopkins Hospital	Baltimore	H. H. Young	784	43	Yes	None	1	2	7/1&9/1	12-48	32	22
Beth Israel Hospital	Boston	E. G. Crabtree	343	39	Yes	None	1	0	6/1	24	...	...
Boston City Hospital	Boston	H. H. Howard	514	94	Yes	[a]	1	1	Varies	12	58	15
Massachusetts General Hospital	Boston	G. G. Smith	364	44	Yes	$42	1	1	1/1	24	18	11
University Hospital	Ann Arbor, Mich	R. M. Nesbit	1,357	81	Yes	$25	1	0	7/1	60	73	40
Battle Creek Sanitarium	Battle Creek, Mich	W. F. Martin	881	..	No	$125	1	0	7/1	12	6	1
City of Detroit Receiving Hospital [4]	Detroit	H. W. Plaggemeyer and W. E. Keane	833	100	Yes	$83	1	1	7/15	24	54	20
Harper Hospital	Detroit	F. H. Cole	.....	12	Yes	$25	1	0	7/1	12	...	...
Henry Ford Hospital	Detroit	J. K. Ormond	.....	..	Yes	$130	1	1	9/1	12	13	4
Eloise Hospital (Dr. William J. Seymour Hospital)	Eloise, Mich	J. R. Heidenreich	561	98	Yes	$92	1	1	7/1	12	28	7
Ancker Hospital [20]	St. Paul	F. E. B. Foley	855	98	Yes	$50	1	0	6/1	12	31	19
St. Louis City Hospital	St. Louis	.....	677	100	Yes	$100	1	0	7/1	12	89	40
St. Mary's Group of Hospitals	St. Louis	C. E. Burford	420	42	Yes	$25	1	0	7/1	34	21	8
Bayonne Hospital and Dispensary [21]	Bayonne, N. J.	S. Woodruff	301	70	Yes	[a]	1	0	1/1&7/1	..	12	3
Jersey City Hospital	Jersey City, N. J.	F. Daly	929	90	Yes	$100	1	1	1/1&7/1	12	59	5
Newark City Hospital	Newark, N. J.	R. Harner	645	100	No	$20	1	0	7/1	12	...	...
Kings County Hospital	Brooklyn	C. S. Cochrane	1,825	100	Yes	$100	1	1	1/1&7/1	12	235	33
Long Island College Hospital	Brooklyn	F. L. Senger	464	7	Yes	$22	1	1	7/1	12	17	1
Buffalo City Hospital	Buffalo	F. J. Parmenter	382	65	Yes	$68	1	1	7/1	36	36	11
Buffalo General Hospital	Buffalo	F. J. Parmenter	600	3	Yes	$25	1	0	7/1	12	31	16
Queens General Hospital [16]	Jamaica, N. Y.	F. G. Riley	665	100	Yes	$15	1	1	7/1	12	52	26
Bellevue Hospital [2]	New York City	A. R. Stevens	1,484	100	Yes	...	1	2	1/1&7/1	24	...	...
Morrisania City Hospital	New York City	T. Townsend	710	100	Yes	$15	2	2	1/1&7/1	24	32	6
New York Hospital	New York City	O. Lowsley	376	23	Yes	None	1	1	7/1	32	29	16
New York Post-Graduate Medical School and Hospital	New York City	J. A. Hyams	332	13	Yes	$30	1	0	1/1	12	16	4
Presbyterian Hospital	New York City	J. B. Squire	1,306	30	Yes	$42	1	5	1/1&7/1	36	...	...
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	W. W. Scott	293	63	Yes	$42	1	0	7/1	12	...	...
Sea View Hospital	Staten Island, N. Y.	A. J. Greenberger	180	100	No	$100	1	0	1/1&7/1	12	4	2
Duke Hospital	Durham, N. C.	E. P. Alyea	595	56	Yes	$42	1	0	7/1	48	17	11
City Hospital	Cleveland	C. H. Lenhart	333	97	Yes	$42	1	0	7/1	12	...	...
University Hospitals	Cleveland	J. Joelson	546	35	Yes	$25	1	0	7/1	12	...	...
Starling-Loving University Hospital	Columbus, O.	W. N. Taylor	286	58	Yes	$25	1	1	7/1	24	26	13

Numerical and other references will be found on page 847.

8. UROLOGY—(Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Graduate Hosp. of the Univ. of Pa.	Philadelphia	J. C. Birdsall and W. Mackinney	182	33	Yes	None	1	0	7/1	12	10	3
Hosp. of the University of Pennsylvania	Philadelphia	A. Randall	402	28	Yes	None	1	0	7/1	12	15	10
Pennsylvania Hospital	Philadelphia	L. Herman	323	28	Yes	$20	1	1	7/1	12	13	2
Presbyterian Hospital	Philadelphia	J. C. Birdsall	244	16	Yes	None	1	0	7/1	12	32	12
Mercy Hospital [1]	Pittsburgh	E. J. McCague	410	35	Yes	None	1	0	7/1	36	31	15
University of Virginia Hospital	University	J. H. Neff	602	30	Yes	None	1	1	7/1	24	31	15
State of Wisconsin General Hospital	Madison	I. R. Sisk	.....	85	Yes	$25	1	2	7/1	36	...	...
Milwaukee County Hospital	Wauwatosa, Wis.	R. E. Stockinger	380	97	Yes	$100	1	0	7/16	12	29	16

9. OPHTHALMOLOGY

Los Angeles County Hospital	Los Angeles	G. H. Kress	786	100	Yes	$10	2	0	4/1	24	...	...
Stanford University Hospitals	San Francisco	H. Barkan	480	3	Yes	$25	1	1	7/1	12	2	0
University of California Hospitals	San Francisco	H. C. Naffziger	204	64	Yes	$25	2	0	7/1	12	1	0
Colorado General Hospital [20]	Denver	W. M. Bane	90	61	Yes	$50	1	0	7/1	24	...	...
Episcopal Eye, Ear and Throat Hosp.	Washington, D. C.	.....	.....	25	Yes	None	4	0	3/1,7/1,11/1	16	2	0
Cook County Hospital	Chicago	W. F. Moncreiff	711	100	Yes	$50	3	0	1/1&7/1	12	0	0
Illinois Eye and Ear Infirmary	Chicago	.....	.....	100	Yes	None	6	0	1/1&7/1	12	...	...
Michael Reese Hospital	Chicago	.....	580	41	Yes	None	1	0	1/1	12	...	...
Passavant Memorial Hospital	Chicago	S. Gifford	272	7	Yes	None	1	0	7/1	12	0	0
Presbyterian Hospital	Chicago	W. F. Moncreiff	201	22	Yes	None	2	0	1/1&7/1	12	0	0
Research and Educational Hospital [2]	Chicago	H. Beard	244	100	Yes	$50	1	0	7/1	12	0	0
University of Chicago Clinics	Chicago	E. V. L. Brown	199	38	Yes	$25	1	3	1/1&7/1	36	1	1
Indianapolis City Hospital	Indianapolis	B. J. Larkin	180	88	Yes	$42	1	0	7/1	12	0	0
Indiana University Hospitals	Indianapolis	W. F. Hughes	241	82	Yes	$33	1	0	7/1	12	1	0
University Hospitals	Iowa City	C. S. O'Brien	1,226	86	Yes	$20	1	3	7/1	48	0	0
Eye, Ear, Nose and Throat Hospital	New Orleans	W. R. Buffington	.....	15	Yes	None	3	0	7/1	20	0	0
Johns Hopkins Hospital	Baltimore	A. Woods	1,244	43	Yes	None	1	5	7/1&9/1	12-48	2	0
Massachusetts Eye and Ear Infirmary	Boston	J. H. Waite	2,349	22	Yes	None	7	0	Quart.	21	11	2
University Hospital [1]	Ann Arbor, Mich.	B. Fralick	968	81	Yes	$25	2	2	7/1	36	2	1
Barnes Hospital [2]	St. Louis	L. T. Post	542	17	Yes	$27	1	1	7/1	36	...	...
St. Louis City Hospital	St. Louis	.....	203	100	Yes	$100	1	0	7/1	12	5	5
St. Mary's Group of Hospitals [1]	St. Louis	W. H. Luedde	162	42	Yes	$25	2	0	7/1	34	0	0
Brooklyn Eye and Ear Hospital	Brooklyn	.....	.....	20	Yes	None	6	0	Quart.	18	2	1
Kings County Hospital	Brooklyn	W. Moehle	357	100	Yes	$15	1	1	1/1&7/1	12	3	1
Long Island College Hospital	Brooklyn	J. N. Evans	201	7	Yes	$22	1	1	7/1	12	...	...
Buffalo City Hospital	Buffalo	H. Weed	110	65	Yes	$68	1	1	7/1	36	0	0
Bellevue Hospital [2]	New York City	W. W. Weeks	661	100	Yes	...	1	4	1/1,5/1,9/1	36	...	...
Herman Knapp Memorial Eye Hospital	New York City	Arnold Knapp	819	15	Yes	None	1	1	Varies	18	0	0
Manhattan Eye, Ear and Throat Hosp.	New York City	.....	1,672	13	Yes	None	6	0	1/1,5/1,9/1	24	5	0
Metropolitan Hospital	New York City	A. L. Chambers	90	100	Yes	None	1	0	7/1	12	0	0
Mount Sinai Hospital	New York City	K. Schlivek	.....	55	Yes	$50	1	0	7/1	12	1	0
New York Eye and Ear Infirmary	New York City	.....	2,911	6	Yes	None	7	0	Quart.	24	1	0
Presbyterian Hospital	New York City	J. M. Wheeler	1,984	30	Yes	$83	6	0	1/1&7/1	36	...	...
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	J. F. Gipner	340	63	Yes	$42	1	1	7/1	12	...	...
Grasslands Hospital	Valhalla, N. Y.	E. C. Wood	85	86	Yes	$75	1	0	7/1	24	0	0
Cincinnati General Hospital	Cincinnati	D. T. Vail	405	87	Yes	[a]	1	1	7/1	24	3	1
City Hospital	Cleveland	P. W. Moore	167	97	Yes	$42	1	0	7/1	12	...	...
University Hospitals	Cleveland	A. B. Bruner	425	35	Yes	$25	1	1	1/1	24	...	...
University of Oregon Medical School Hospitals	Portland	F. A. Kiehle	119	100	Yes	$40	1	0	7/1	12	1	1
Graduate Hospital of the University of Pennsylvania	Philadelphia	L. C. Peter and W. Shoemaker	281	33	Yes	None	1	0	7/1	12	1	0
Temple University Hospital	Philadelphia	W. I. Lillie	151	38	Yes	$40	3	0	7/1	36	...	...
Wills Hospital	Philadelphia	.....	3,805	68	Yes	None	7	0	Quart.	21	11	0

a. OPHTHALMOLOGY-OTOLARYNGOLOGY (see page 845)

10. OTOLARYNGOLOGY

Children's Hospital	Los Angeles	J. M. Brown	1,302	45	Yes	$90	1	0	7/1	12	3	3
Los Angeles County Hospital	Los Angeles	J. M. Brown and F. Detling	2,420	100	Yes	$10	3	0	4/1	24	34	12
San Francisco Hospital	San Francisco	R. C. Martin and H. B. Graham	430	100	Yes	[a]	1	1	7/1	12	...	...
Stanford University Hospitals	San Francisco	E. Sewall	1,364	3	Yes	$25	1	1	7/1	12	2	2
University of California Hospital	San Francisco	H. C. Naffziger	787	64	Yes	$25	1	0	7/1	12	2	0
New Haven Hospital	New Haven, Conn.	N. Canfield	1,050	34	Yes	$40	1	1	7/1	12	8	3
Episcopal Eye, Ear and Throat Hosp.	Washington, D. C.	.....	.....	25	Yes	None	3	0	3/1,7/1,11/1	12	13	2
Cook County Hospital	Chicago	S. J. Pearlman	7,395	100	Yes	$25	3	0	1/1&7/1	12	98	29
Illinois Eye and Ear Infirmary	Chicago	.....	.....	100	Yes	None	1	0	1/1&7/1	12	...	...
Passavant Memorial Hospital	Chicago	J. F. Delph	364	7	Yes	None	1	0	7/1	12	0	0
Presbyterian Hospital	Chicago	D. Hayden	1,746	22	Yes	$50	2	0	1/1&7/1	12	0	0
Research and Educational Hospital [2]	Chicago	F. L. Lederer	936	100	Yes	$50	1	0	7/1	12	6	3
University of Chicago Clinics	Chicago	J. R. Lindsay	796	38	Yes	None	1	2	1/1&7/1	24	2	2
Indianapolis City Hospital	Indianapolis	R. Chappell	1,312	88	Yes	$42	1	0	7/1	12	3	1
Indiana University Hospitals	Indianapolis	C. H. McCaskey	1,065	82	Yes	$33	1	0	7/1	12	4	2
University Hospitals	Iowa City	D. M. Lierle	2,301	86	Yes	$20	2	5	7/1	60	19	15
Eye, Ear, Nose and Throat Hospital	New Orleans	J. R. Hume and F. E. Lejeune	.....	15	Yes	None	6	0	7/1	24	16	3
Johns Hopkins Hospital	Baltimore	S. J. Crowe	933	43	Yes	None	1	1	7/1&9/1	12-36	8	4
Beth Israel Hospital	Boston	L. M. Freedman and L. Arkin	1,128	39	Yes	None	1	0	7/1	12	...	...
Massachusetts Eye and Ear Infirmary	Boston	H. P. Mosher	3,424	22	Yes	None	7	0	Quart.	21	34	16
Memorial Hospital	Worcester, Mass.	G. Berry	1,439	14	Yes	$42	1	0	7/1	12	7	4
University Hospital	Ann Arbor, Mich.	A. C. Furstenberg	1,636	81	Yes	$25	1	1	7/1	48	27	19
Barnes Hospital [2]	St. Louis	L. W. Dean, Sr.	1,274	17	Yes	None	1	8	7/1	36	...	...
Jewish Hospital	St. Louis	S. B. Westlake	314	25	Yes	$63	1	0	7/1	12	3	2
St. Louis City Hospital	St. Louis	.....	1,332	100	Yes	$100	1	0	7/1	12	34	16
St. Mary's Group of Hospitals [1]	St. Louis	W. E. Sauer	993	42	Yes	$25	1	0	7/1	34	1	1
Newark City Hospital	Newark, N. J.	I. Berney	2,519	100	No	$20	1	0	7/1	12	...	...
Brooklyn Eye and Ear Hospital	Brooklyn	.....	.....	20	Yes	None	8	0	Varies	16	20	7
Jewish Hospital	Brooklyn	E. L. Berker	792	24	Yes	$50	1	0	7/1	12	11	3
Kings County Hospital	Brooklyn	M. C. Myerson	3,130	100	Yes	$15	1	2	7/1	36	56	19
Long Island College Hospital	Brooklyn	R. L. Moorhead	958	7	Yes	$22	1	0	7/1	12	...	...
Buffalo City Hospital	Buffalo	J. F. Fairbairn	309	65	Yes	$68	2	2	7/1	36	4	3
Buffalo General Hospital	Buffalo	J. F. Fairbairn	1,016	3	Yes	$25	1	1	7/1	12	3	3
Bellevue Hospital [2]	New York City	J. W. Fowlkes	3,148	100	Yes	...	1	5	3/1,7/1,11/1	24	...	...
Flower-Fifth Avenue Hospital	New York City	J. A. W. Hetrick	1,295	5	Yes	$50	2	0	7/1	24	0	0
Manhattan Eye, Ear and Throat Hosp.	New York City	.....	15,460	13	Yes	None	8	0	Quart.	24	21	1

Numerical and other references will be found on page 847.

10. OTOLARYNGOLOGY—(Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Metropolitan Hospital	New York City	J. A. W. Hetrick	969	100	Yes	$100	1	0	7/1	12	...	...
Mount Sinai Hospital	New York City	R. Kramer and J. L. Maybaum	.....	55	Yes	$50	1	1	1/1&7/1	24	11	6
New York Eye and Ear Infirmary	New York City	.....	3,209	6	Yes	None	8	0	Quart.	24	11	0
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	C. A. Heatly and C. T. Harris	1,305	63	Yes	$42	1	1	7/1	12	...	...
Sea View Hospital	Staten Island, N. Y.	H. Rubins	1,844	100	No	$100	2	0	1/1&7/1	12	0	0
Grasslands Hospital	Valhalla, N. Y.	M. T. Smith	633	86	Yes	$75	1	0	7/1	24	5	3
Cincinnati General Hospital	Cincinnati	S. Iglauer	1,450	87	Yes	[a]	1	1	7/1	24	16	5
City Hospital	Cleveland	C. W. Engler	808	97	Yes	$42	1	0	4/1	18	...	...
St. Luke's Hospital	Cleveland	C. E. Pitkin	1,719	18	Yes	$25	1	1	7/1	24	4	2
University Hospitals	Cleveland	W. B. Chamberlin	2,119	35	Yes	$25	1	2	7/1	24	...	...
University of Oregon Medical School Hospitals	Portland	R. A. Fenton	405	100	Yes	$40	1	0	7/1	12	4	2
George F. Geisinger Memorial Hospital	Danville, Pa	F. W. Davison	931	27	Yes	$50	1	0	9/1	12	3	1
Graduate Hospital of the University of Pennsylvania	Philadelphia	.....	2,661	33	Yes	None	2	0	7/1	12	16	2
Temple University Hospital	Philadelphia	R. F. Ridpath and M. S. Ersner	1,539	38	Yes	$40	1	0	7/1	36	3	1
Gill Memorial Eye, Ear and Throat Hospital	Roanoke, Va	E. G. Gill	.....	10	Yes	$50	1	1	7/1	24	0	0

a. OPHTHALMOLOGY-OTOLARYNGOLOGY

White Memorial Hospital	Los Angeles	W. A. Boyce and B. N. Colver	531	2	Yes	$90	3	0	7/1	12	3	1
San Diego County General Hospital	San Diego, Calif.	G. L. Kilgore and W. H. Halsey	808	100	Yes	$75	1	0	7/1	12	...	...
Hospital for Children	San Francisco	R. C. Martin	1,193	4	Yes	$25	1	0	7/1	12	2	1
Gallinger Municipal Hospital	Washington, D. C.	W. T. Davis and D. Davis	575	99	No	$30	1	1	7/1	12	1	0
Grady Hospital	Atlanta, Ga	.....	2,101	100	Yes	$50	2	3	6/20	12	5	1
Charity Hospital	New Orleans	.....	2,267	100	Yes	$25	1	3	7/1	24	...	...
Touro Infirmary	New Orleans	H. Blum & A. I. Weil	1,522	35	Yes	$25	1	0	7/1	12	7	0
Baltimore Eye, Ear and Throat Charity Hospital	Baltimore	H. K. Fleck	2,530	49	Yes	None	3	0	7/1	12	7	2
University Hospital	Baltimore	C. A. Clapp and E. A. Looper	1,074	47	Yes	None	1	0	7/1	24	8	2
Boston City Hospital [2]	Boston	J. J. Regan and L. M. Freedman	5,482	94	Yes	None	2	5	Quart.	21	25	7
City of Detroit Receiving Hospital	Detroit	P. Heath and J. M. Robb	903	100	Yes	$83	1	1	7/15	12	14	6
Grace Hospital	Detroit	C. C. McClelland	1,933	27	Yes	$50	1	1	9/1	12	...	...
Harper Hospital	Detroit	P. Heath and J. M. Robb	3,304	12	Yes	$25	1	3	7/1	36	...	...
Henry Ford Hospital	Detroit	E. L. Whitney and G. C. Kreutz	.....	..	Yes	$130	1	4	9/1	12	8	6
Eloise Hospital (Dr. William J. Seymour Hospital)	Eloise, Mich.	M. Mintz	706	98	Yes	$92	1	1	7/1	12	2	2
Minneapolis General Hospital [1]	Minneapolis	M. C. Pfunder	1,141	85	Yes	$25	2	0	1/1	36	5	3
University Hospitals [1]	Minneapolis	H. Newhart	602	12	Yes	$50	4	0	1/1&7/1	36	8	5
Ancker Hospital	St. Paul	R. O. Leavenworth	1,335	98	Yes	$50	1	1	7/1	24	8	3
Jersey City Hospital	Jersey City, N. J.	F. Brophy and M. Borrone	3,318	90	Yes	None	2	2	7/1	12	12	0
Newark Eye and Ear Infirmary	Newark, N. J.	W. P. Eagleton	2,124	13	Yes	None	3	0	Varies	12	33	15
Queens General Hospital	Jamaica, N. Y.	W. G. Frey and M. S. Bender	1,101	100	Yes	$15	1	2	7/1	12	17	9
Harlem Eye and Ear Hospital	New York City	C. B. Meding	1,897	43	Yes	None	3	0	1/1&7/1	18	...	...
N. Y. Polyclinic Med. School and Hosp.	New York City	.....	2,375	15	Yes	None	4	0	1/1&7/1	24	8	3
N. Y. Post-Graduate Medical School and Hospital	New York City	M. Cohen and D. Macpherson	2,765	13	Yes	None	1	5	5/1&11/1	36	7	1
St. Luke's Hospital [2]	New York City	.....	2,635	48	Yes	None	1	2	3/1&9/1	18	...	...
Duke Hospital	Durham, N. C.	W. B. Anderson and W. W. Eagle	991	56	Yes	$42	1	1	7/1	36	12	2
State University and Crippled Children's Hospitals	Oklahoma City	E. S. Ferguson and T. G. Walls	619	71	Yes	$50	1	0	7/1	12	13	3
Eye and Ear Hospital	Pittsburgh	W. E. Carson and J. H. McCready	4,626	17	Yes	None	3	0	7/1	24	26	6
Memphis Eye, Ear, Nose and Throat Hospital	Memphis, Tenn.	E. C. Ellett	1,756	27	Yes	None	4	0	1/1&7/1	24	3	1
Medical College of Virginia, Hosp. Div.	Richmond	R. H. Courtney and K. S. Blackwell	1,306	5	Yes	$50	1	1	7/1	12	10	4
University of Virginia Hospital	University	H. S. Hedges and F. D. Woodward	1,110	30	Yes	$25	1	1	7/1	24	5	1
State of Wisconsin General Hospital	Madison	F. A. Davis and W. N. Nesbit	.....	85	Yes	$25	1	2	7/1	36	...	...
Milwaukee County Hospital	Wauwatosa, Wis.	S. G. Higgins	250	97	Yes	$100	1	0	7/16	12	...	...

11. PATHOLOGY

Hillman Hospital	Birmingham, Ala.	G. S. Graham	10,537	100	....	$40	1	0	7/1	12	911	259
Children's Hospital	Los Angeles	C. M. Hyland	4,339	45	....	$90	1	0	7/1	12	160	146
Los Angeles County Hospital	Los Angeles	N. G. Evans	53,717	100	....	$10	2	0	4/1	24	5,122	2,018
St. Vincent's Hospital	Los Angeles	J. W. Budd	6,397	5	....	$60[c]	1	0	7/1	36	209	104
Collis P. and Howard Huntington Memorial Hospital	Pasadena, Calif.	A. G. Foord	5,661	5	....	$100	1	0	7/1	12	258	155
Mount Zion Hospital	San Francisco	G. Y. Rusk	4,012	16	....	$50	1	0	6/15	12	174	94
San Francisco Hospital	San Francisco	D. A. Wood and G. Y. Rusk	13,276	100	....	[a]	1	1	7/1	12	1,539	577
University of California Hospital	San Francisco	C. L. Connor	6,386	64	....	$25	1	0	7/1	12	229	159
Denver General Hospital	Denver	E. T. Thorsness	17,305	100	....	$60	1	0	7/1	12	1,145	458
New Haven Hospital	New Haven, Conn.	M. C. Winternitz	8,335	34	....	$40	1	1	7/1	12	423	255
Children's Hospital	Washington, D. C.	J. W. Lindsay	6,023	..	....	$50	1	0	7/1	12	278	121
Gallinger Municipal Hospital	Washington, D. C.	H. H. Leffler	17,653	99	....	$30	1	0	7/1	12	1,565	599
Garfield Memorial Hospital	Washington, D. C.	J. W. Lindsay	6,691	..	....	$50	1	0	7/1	12	270	114
Grady Hospital	Atlanta, Ga.	W. B. Matthews	20,948	100	....	$100	1	0	6/20	12	1,414	456
Children's Memorial Hospital	Chicago	W. G. Hibbs	4,227	50	....	$50	1	0	7/1	12	138	98
Cook County Hospital	Chicago	W. Schiller	72,494	100	....	$25	3	0	1/1&7/1	12	8,782	2,333
Michael Reese Hospital	Chicago	O. Saphir	17,830	41	....	None	1	1	1/1	12	672	338
Mt. Sinai Hospital	Chicago	I. Davidsohn	6,520	23	....	$25	1	1	6/15	12	231	87
Presbyterian Hospital	Chicago	C. W. Apfelbach	11,188	22	....	$50	2	0	1/1&7/1	12	286	176

Numerical and other references will be found on page 847.

11. PATHOLOGY—(Continued)

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Provident Hospital (col.)	Chicago	J. H. Lewis	3,481	63	....	$50	1	0	9/1	12	210	92
Research and Educational Hospital [2]	Chicago	S. A. Levinson	5,848	100	....	$50	1	0	9/1	12	226	216
St. Luke's Hospital [1]	Chicago	E. F. Hirsch	12,068	6	....	$125	1	0	7/1	12	700	150
University of Chicago Clinics	Chicago	H. G. Wells	6,838	38	....	$25	1	0	1/1&7/1	12	241	170
Evanston Hospital	Evanston, Ill.	E. L. Benjamin	8,604	10	....	$83	1	0	10/1	24	171	135
Indianapolis City Hospital	Indianapolis	H. C. Thornton	10,647	88	....	$42	2	0	7/1	12	1,031	485
Indiana University Hospitals	Indianapolis	F. Forry	9,421	82	....	$33	1	0	7/1	12	350	204
Methodist Episcopal Hospital	Indianapolis	H. M. Banks	22,200	11	....	$75	1	1	7/1	12	616	142
Ball Memorial Hospital	Muncie, Ind.	L. G. Montgomery	4,618	..	....	$100	1	0	7/1	12	338	136
University Hospitals	Iowa City	H. P. Smith	20,198	86	....	$20	1	0	7/1	48	556	350
University of Kansas Hospitals	Kansas City, Kan.	H. R. Wahl	5,726	66	....	$50	1	4	7/1	36	270	221
Louisville City Hospital	Louisville, Ky.	A. J. Miller	11,196	90	....	$14	1	1	7/1	24	984	225
Charity Hospital	New Orleans	R. D'Aunoy	21,210	100	....	$25	4	0	7/1	36	2,284	1,246
Touro Infirmary	New Orleans	J. A. Lanford	10,885	35	....	$25	1	0	7/1	12	424	180
Baltimore City Hospitals	Baltimore	F. B. Kindell	7,657	99	....	$17	1	1	7/1	24	1,620	634
Johns Hopkins Hospital	Baltimore	W. G. MacCallum	16,336	43	....	None	1	1	7/1&9/1	12-36	631	406
Boston City Hospital	Boston	F. Parker, Jr.	41,492	94	....	None	5	0	Varies	36	2,762	919
Children's Hospital	Boston	S. B. Wolbach	5,435	1	....	None	1	0	7/1	12	131	79
Massachusetts General Hospital	Boston	T. B. Mallory	15,630	44	....	$42	1	0	1/1	12	426	221
Massachusetts Memorial Hospitals	Boston	C. F. Branch	7,544	31	....	$50	1	0	7/1	24	256	140
New England Deaconess Hospital [13]	Boston	S. Warren	.....	..	....	$25	1	2	7/1	12	...	202
Peter Bent Brigham Hospital	Boston	S. B. Wolbach	4,714	46	....	$83	1	0	Varies	24	356	262
Worcester State Hospital	Worcester, Mass.	W. Freeman	799	90	....	None	1	0	7/1	12	284	137
University Hospital	Ann Arbor, Mich.	C. Weller	21,582	81	....	$25	1	0	7/1	12	763	438
City of Detroit Receiving Hospital	Detroit	O. A. Brines	21,365	100	....	$50	1	1	7/15	24	2,009	617
Henry Ford Hospital	Detroit	F. W. Hartman	10,045	..	....	$110	1	1	9/1	36	483	218
Eloise Hospital (Dr. Wm. J. Seymour Hospital)	Eloise, Mich.	A. H. Chernoff	11,920	98	....	$83	1	1	9/1	12	1,137	422
Hurley Hospital	Flint, Mich.	G. R. Backus	10,300	60	....	$40	1	0	7/1	36	637	213
Ancker Hospital	St. Paul	J. F. Noble	9,761	98	....	$50	1	0	7/1	12	855	569
St. Joseph Hospital	Kansas City, Mo.	R. W. Kerr	5,106	15	....	$25	1	0	7/1	12	222	103
Barnes Hospital [2]	St. Louis	L. Loeb	9,485	17	....	None	1	0	7/1	12	367	237
St. Louis City Hospital	St. Louis	S. H. Gray	18,481	100	....	$125	1	0	7/1	12	1,768	778
University of Nebraska Hospital	Omaha	J. P. Tollman	3,558	100	....	$50	1	0	7/1	24	135	118
Mary Hitchcock Memorial Hospital [2]	Hanover, N. H.	R. E. Miller	3,234	17	....	$100	1	0	1/1&7/1	12	110	89
Mountainside Hospital	Montclair, N. J.	M. J. Fein	6,166	..	....	$100	1	0	1/1	12	297	127
Newark Beth Israel Hospital	Newark, N. J.	W. Antopol	11,705	6	....	$25	1	1	10/1	24	473	159
Albany Hospital	Albany, N. Y.	A. W. Wright	11,851	2	....	$25	5	0	7/1	12	499	571
Bender Hygienic Laboratory	Albany, N. Y.	J. J. Clemmer	[e]	..	....	$150[e]	1	0	7/1	12	...	181
Binghamton City Hospital	Binghamton, N. Y.	V. W. Bergstrom	8,395	55	....	$50	1	0	7/1	12	404	97
Jewish Hospital	Brooklyn	M. Lederer	15,181	24	....	$50	1	1	1/1	12	539	168
Kings County Hospital	Brooklyn	W. W. Hala	57,534	100	....	$50	2	2	7/1	24	5,566	1,110
Long Island College Hospital	Brooklyn	J. R. Oliver	8,145	7	....	$22	1	0	7/1	12	297	188
St. John's Hospital	Brooklyn	K. Strong	4,725	51	....	$25	1	0	7/1	12	231	118
Buffalo City Hospital	Buffalo	W. F. Jacobs	10,532	65	....	$68	1	2	7/1	36	1,102	373
Buffalo General Hospital	Buffalo	K. L. Terplan	10,760	3	....	$25	1	0	7/1	12	606	244
Millard Fillmore Hospital	Buffalo	N. W. Elton	6,498	17	....	$25	1	0	7/1	12	296	119
Meadowbrook Hospital	Hempstead, N. Y.	T. J. Curphey	5,089	89	....	$100	1	0	7/1	12	460	239
Mary Immaculate Hospital [2]	Jamaica, N. Y.	E. F. Koch	7,078	6	....	None	1	0	7/1	12	355	138
Queens General Hospital	Jamaica, N. Y.	A. A. Angrist	13,426	100	....	$15	1	1	7/1	12	808	509
Fordham Hospital	New York City	L. R. Ferraro	15,157	100	....	$15	1	0	7/1	12	1,157	446
Harlem Hospital	New York City	S. Weintraub	15,890	100	....	$15	1	1	1/1&7/1	12	1,664	375
Lenox Hill Hospital	New York City	G. L. Rohdenburg	3,347	24	....	None	1	0	7/1	12	311	131
Lincoln Hospital	New York City	C. R. Brown	10,593	..	....	$15	2	0	Varies	..	818	275
Metropolitan Hospital	New York City	A. Saccone	10,847	100	....	$70	1	0	7/1	12	1,017	187
Montefiore Hosp. for Chronic Diseases	New York City	D. Marine	1,770	88	....	$50	1	1	7/1	12	486	380
Morrisania City Hospital	New York City	W. Aronson	13,711	100	....	$15	1	0	7/1	12	1,001	318
New York City Hospital	New York City	J. R. Lisa	7,839	100	....	$100	1	0	7/1	12	782	307
New York Hospital	New York City	E. L. Opie	18,367	23	....	None	1	0	7/1	36	587	323
N. Y. Post-Graduate Medical School and Hospital	New York City	W. J. MacNeal	9,554	13	....	None	1	1	7/1	12	313	121
Presbyterian Hospital	New York City	J. W. Jobling	19,326	30	....	...	1	1	7/1	12	...	...
St. Luke's Hospital [2]	New York City	F. C. Wood	8,009	48	....	$100	1	0	7/1	24	375	161
Willard Parker Hospital	New York City	V. B. Dolgopol	5,639	100	....	$100	1	0	1/1	12	118	72
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	G. H. Whipple	13,550	63	....	$42	2	0	7/1	12	211	137
Grasslands Hospital	Valhalla, N. Y.	G. Dalldorf	5,892	86	....	$75	1	1	1/1&7/1	24	450	329
Duke Hospital	Durham, N. C.	W. D. Forbus	10,954	56	....	$42	1	0	7/1	48	395	232
Cincinnati General Hospital	Cincinnati	R. S. Austin	15,834	87	....	[a]	5	0	7/1	24	1,521	794
City Hospital [2]	Cleveland	H. T. Karsner	14,482	97	....	$42	1	1	7/1	24	1,528	670
Mount Sinai Hospital	Cleveland	B. S. Kline	8,270	100	....	$50	1	0	7/1	12	259	72
St. Luke's Hospital	Cleveland	R. Dominguez	11,302	18	....	$25	1	1	7/1	24	480	132
St. Vincent Charity Hospital	Cleveland	D. J. Rehbock	5,879	35	....	...	1	0	7/1	12	474	191
University Hospitals	Cleveland	H. T. Karsner	18,469	35	....	$25	1	1	7/1	12	715	408
Miami Valley Hospital	Dayton, O.	W. Simpson	10,465	23	....	$75	1	0	7/1	12	675	267
State University and Crippled Children's Hospitals	Oklahoma City	H. Jeter	6,455	71	....	$50	1	0	7/1	12	321	129
St. Vincent's Hospital	Portland	T. D. Robertson	10,406	10	....	$25	1	0	7/1&12/1	12	394	147
University of Oregon Medical School Hospitals	Portland	F. R. Menne	6,839	100	....	$40	2	0	7/1	12	714	338
Abington Memorial Hospital	Abington, Pa.	J. D. Eiman	6,126	25	....	$100	1	0	10/1	12	233	99
Graduate Hospital of the University of Pennsylvania	Philadelphia	E. A. Case	6,804	33	....	None	1	0	7/1	24	269	94
Hosp. of the University of Pennsylvania	Philadelphia	E. B. Krumbhaar	11,201	98	....	None	1	0	7/1	12	313	206
Pennsylvania Hospital	Philadelphia	J. T. Bauer	8,849	28	....	$20	2	0	7/1	12	442	228
Philadelphia General Hospital	Philadelphia	J. H. Clark	25,845	95	....	$100	2	0	7/1	12	3,780	1,947
Presbyterian Hospital	Philadelphia	K. Fowler	5,165	16	....	$50	1	0	7/1	36	270	143
Temple University Hospital	Philadelphia	L. W. Smith	9,681	38	....	$40	1	0	7/1	36	416	189
Allegheny General Hospital	Pittsburgh	S. R. Haythorn	8,253	54	....	$85	2	0	9/1	12	478	120
Children's Hospital	Pittsburgh	M. L. Menthen	3,212	50	....	None	1	0	7/1	12	210	64
Elizabeth Steel Magee Hospital	Pittsburgh	M. Cohen	7,565	39	....	$42	1	0	9/1	12	191	54
Mercy Hospital	Pittsburgh	H. H. Permar	12,412	35	....	$90	2	0	7/1	12	580	141
Montefiore Hospital	Pittsburgh	K. Yardumian	6,479	37	....	...	1	0	7/1	12	264	98
Presbyterian Hospital	Pittsburgh	G. R. Lacy	2,708	42	....	$42	1	0	9/1	12	180	53
St. Francis Hospital	Pittsburgh	A. J. Bruecken	10,459	14	....	$50	4	0	9/1	12	536	75
Western Pennsylvania Hospital	Pittsburgh	P. Gross	11,811	32	....	None	1	0	7/1	12	526	110
Reading Hospital	Reading, Pa.	E. D. Funk	6,667	42	....	$83	1	0	7/1	12	294	188
Rhode Island Hospital	Providence	B. E. Clarke	10,890	39	....	$100	1	0	Varies	12	957	340
John Gaston Hospital	Memphis, Tenn.	H. C. Schmeisser	14,097	97	....	$32	1	1	7/1	12	1,323	277
Vanderbilt University Hospital	Nashville, Tenn.	E. W. Goodpasture	4,886	29	....	$35	1	2	7/1	12	313	107
Baylor University Hospital [1]	Dallas, Tex.	G. T. Caldwell	13,787	20	....	$50	1	0	7/1	12	372	127
Med. College of Virginia, Hospital Div.	Richmond	F. Apperly	9,979	5	....	$25	1	0	7/1	12	740	309
State of Wisconsin General Hospital	Madison	W. D. Stovall	11,689	85	....	$25	3	0	7/1	36	428	283
Milwaukee County Hospital	Wauwatosa, Wis.	J. Grill	16,832	97	....	$100	1	0	7/16	12	1,165	444
Queen's Hospital	Honolulu, Hawaii	N. P. Larsen	8,878	[b]	....	$250	1	0	1/1	24	333	151

Numerical and other references will be found on page 847.

12. RADIOLOGY

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Service Begins	Available Training (Months)	Deaths	Autopsies
Los Angeles County Hospital	Los Angeles	R. A. Carter	53,717	100	....	$10	2	0	4/1	36	5,122	2,018
San Francisco Hospital	San Francisco	L. Bryan and L. H. Garland	13,276	100	....	[a]	1	0	7/1	12	1,539	577
Stanford University Hospitals	San Francisco	R. R. Newell	9,557	3	....	$25	1	1	7/1	12	233	108
University of California Hospitals	San Francisco	R. S. Stone	6,386	64	....	$25	1	1	7/1	12	229	159
Colorado General Hospital [20]	Denver	E. A. Schmidt	3,558	61	....	$100	1	0	7/1	12	210	194
New Haven Hospital	New Haven, Conn	H. Wilson	8,335	34	....	$40	1	1	7/1	12	423	255
Garfield Memorial Hospital	Washington, D. C.	E. A. Merritt	6,691	..	....	$50	1	0	7/1	12	270	114
Georgetown University Hospital	Washington, D. C.	F. Coe	6,001	6	....	[a]	1	0	9/1	24	209	67
Cook County Hospital [1]	Chicago	M. J. Hubeny	72,494	100	....	$50	2	0	1/1&7/1	24	8,782	2,333
Michael Reese Hospital	Chicago	R. A. Arens	17,830	41	....	$25	2	0	7/1	36	672	338
Presbyterian Hospital	Chicago	F. H. Squire	11,188	22	....	$50	1	0	7/1&9/1	36	286	176
Research and Educational Hospital [2]	Chicago	A. Hartung	5,848	100	....	$50	1	0	9/1	12	226	216
St. Luke's Hospital [1]	Chicago	E. L. Jenkinson	12,068	6	....	$50	3	0	Varies	36	700	150
University of Chicago Clinics	Chicago	P. C. Hodges	6,838	38	....	$25	1	2	1/1&7/1	36	241	170
Methodist Episcopal Hospital	Indianapolis	H. C. Ochsner	22,200	11	....	$75	1	0	7/1	24	616	142
University Hospitals	Iowa City	H. D. Kerr	20,198	86	....	$20	2	2	7/1	24	....	....
Charity Hospital	New Orleans	A. Granger	21,210	100	....	$25	1	1	7/1	24	2,284	1,246
Touro Infirmary	New Orleans	J. C. Rodick	10,885	35	....	$25	1	0	7/1	12	424	180
Johns Hopkins Hospital	Baltimore	J. W. Pierson	16,336	43	....	None	1	1	7/1&9/1	12-24	631	406
University Hospital	Baltimore	H. J. Walton	9,046	47	....	None	1	1	7/1	24	585	258
Beth Israel Hospital	Boston	S. A. Robins	6,133	39	....	$35	1	0	7/1	12	243	123
Boston City Hospital	Boston	P. F. Butler	41,492	94	....	$83	1	0	Varies	12	2,762	919
Massachusetts General Hospital	Boston	G. W. Holmes	15,620	44	....	$42	1	1	1/1	12	426	221
Massachusetts Memorial Hospitals	Boston	G. Levene	7,544	31	....	$50	3	0	7/1	36	256	140
Peter Bent Brigham Hospital	Boston	M. S. Sosman	4,714	46	....	$62	1	1	Varies	36	356	202
University Hospital	Ann Arbor, Mich.	F. J. Hodges	21,582	81	....	$25	3	3	7/1	36	763	438
City of Detroit Receiving Hospital	Detroit	J. C. Kenning	21,365	100	....	$83	1	1	7/15	24	2,009	617
Grace Hospital	Detroit	R. H. Stevens	15,444	27	....	$50	1	0	Varies	36	656	182
Harper Hospital	Detroit	L. Reynolds	18,803	12	....	$25	1	0	7/1	12	572	139
Henry Ford Hospital	Detroit	H. P. Doub	10,045	..	....	$130	1	1	9/1	12	483	218
Hurley Hospital [2]	Flint, Mich.	M. W. Clift	10,300	60	....	$75	1	0	7/1	36	637	213
University Hospitals [1]	Minneapolis	L. Rigler	9,203	12	....	$50	2	0	7/1	36	487	342
St. Louis City Hospital	St. Louis	L. Sante	18,481	100	....	$75	1	1	7/1	24	1,768	778
Creighton Memorial St. Joseph Hosp.	Omaha	J. F. Kelly	7,587	17	....	$25	1	0	12/1	36	313	89
University of Nebraska Hospital	Omaha	H. B. Hunt	3,558	100	....	$50	1	0	7/1	12	135	118
Newark Beth Israel Hospital [2]	Newark, N. J.	N. J. Furst	11,705	6	....	...	1	0	10/1	12	473	157
Jewish Hospital	Brooklyn	M. G. Wasch	15,181	24	....	...	1	0	1/1&7/1	..	539	168
Kings County Hospital	Brooklyn	A. B. Friedman	57,534	100	....	$15	1	0	Varies	24	5,566	1,110
Long Island College Hospital	Brooklyn	A. L. L. Bell	9,145	7	....	$22	1	0	7/1	12	297	188
Methodist Episcopal Hospital	Brooklyn	G. W. Cramp	9,821	10	....	$30	1	0	7/1	12	317	93
Buffalo City Hospital	Buffalo	C. Orr	10,532	65	....	$68	1	1	7/1	36	1,102	373
Queens General Hospital	Jamaica, N. Y.	I. B. Startz	13,426	100	....	$15	1	0	7/1	12	808	509
New Rochelle Hospital	New Rochelle, N. Y.	A. J. Chilko	4,879	6	....	$50	1	0	7/1	12	173	66
Bellevue Hospital [2, 15]	New York City	L. J. Friedman	62,112	100	....	...	5	0	1/1&7/1	12	3,485	1,098
Beth Israel Hospital	New York City	I. S. Hirsch	7,790	45	....	None	3	0	1/1&10/1	12	327	80
Bronx Hospital	New York City	W. Snow	11,529	24	....	$50	1	0	1/1	12	336	120
Lenox Hill Hospital	New York City	W. H. Stewart	11,347	24	....	$25	1	0	1/1	24	311	131
Montefiore Hosp. for Chronic Diseases [15]	New York City	A. J. Bendick	1,770	88	....	$50	1	0	7/1	12	486	380
Morrisania City Hospital	New York City	S. F. Weitzner	13,711	100	....	$15	1	0	1/1	12	1,011	318
Mount Sinai Hospital	New York City	L. Jaches	15,745	55	....	$50	2	1	1/1&7/1	18	866	451
New York Hospital	New York City	J. R. Carty	18,367	23	....	$25	1	2	7/1	36	587	323
New York Post-Graduate Medical School and Hospital	New York City	W. H. Meyer	9,554	13	....	$30	1	1	7/1&11/1	12	313	121
Presbyterian Hospital	New York City	R. Golden	19,326	30	....	$42	1	2	7/1	36	....	....
St. Luke's Hospital [2]	New York City	E. J. Ryan	8,009	48	....	...	1	0	1/1	12	375	161
Strong Memorial and Rochester Municipal Hospitals	Rochester, N. Y.	S. L. Warren	13,550	63	....	$42	1	1	7/1	12	211	137
Sea View Hospital	Staten Island, N. Y.	H. K. Taylor	16,848	100	....	$100	1	0	1/1&7/1	12	452	183
Grasslands Hospital	Valhalla, N. Y.	A. G. Debbie	5,892	86	....	$75	1	0	9/1	24	450	329
Duke Hospital	Durham, N. C.	R. J. Reeves	10,954	56	....	$42	3	0	7/1	36	395	232
Cincinnati General Hospital	Cincinnati	S. Lange	15,834	87	....	[a]	1	2	7/1	24	1,521	794
Jewish Hospital	Cincinnati	S. Brown	5,713	20	....	$250	1	0	7/1	12	236	61
City Hospital	Cleveland	H. T. Karsner	14,482	97	....	$42	1	0	7/1	12	1,528	670
University Hospitals	Cleveland	E. Freedman	18,469	35	....	$25	1	0	7/1	12	715	408
State University and Crippled Children's Hospitals	Oklahoma City	J. E. Heatley	6,455	71	....	$50	1	0	7/1	12	321	149
University of Oregon Medical School Hospitals	Portland	D. L. Palmer	6,839	100	....	$40	1	0	7/1	12	714	358
Hosp. of the University of Pennsylvania	Philadelphia	H. K. Pancoast	11,201	28	....	None	1	0	7/1	12	313	206
Pennsylvania Hospital	Philadelphia	P. A. Bishop	8,849	28	....	$20	2	0	7/1	12	442	228
Philadelphia General Hospital	Philadelphia	B. P. Widmann	25,845	95	....	$100	1	0	7/1	12	3,780	1,947
Temple University Hospital	Philadelphia	W. E. Chamberlain	9,681	38	....	$40	3	0	7/1	36	416	189
Roper Hospital	Charleston, S. C.	H. Rudisill, Jr.	7,644	71	....	$40	1	0	7/1	12	622	227
Baylor University Hospital [1]	Dallas, Tex.	C. L. Martin	13,787	20	....	$12	1	0	7/1	..	372	127
Parkland Hospital	Dallas, Tex.	P. E. Wigby	8,935	91	....	...	1	0	1/1	12	791	108
John Sealy Hospital	Galveston, Tex.	J. B. Johnson	5,835	50	....	$60	1	0	7/1	12	372	194
Medical College of Virginia, Hospital Division	Richmond	F. B. Mandeville	9,979	5	....	$50	1	0	7/1	24	740	309
University of Virginia Hospital	University	V. W. Archer	8,173	30	....	$75	1	1	7/1	36	416	188
State of Wisconsin General Hospital	Madison	E. A. Pohle	11,689	85	....	$25	3	0	7/1	36	428	293

PHYSICAL THERAPY

Stanford University Hospitals	San Francisco	W. H. Northway	14,379	3	Yes	$25	1	0	7/1	12	...	...
Michael Reese Hospital [2]	Chicago	.....	2,000	41	Yes	$50	1	0	7/1	12	...	...

a. Compensation arranged by medical school and hospital.
b. Salary varies.
c. In lieu of maintenance.
d. Report covers six months only.
e. Hospital facilities by affiliation.
1. Fellowships available.
2. Data as reported for 1936.
3. Mixed residencies represent general hospital experience of at least one year duration following an approved internship. All hospitals approved for intern training are also certified for general or mixed residencies.
4. Includes proctology.
5. Medical and surgical appointments.
6. Dental as well as medical degree required.
7. Research appointments available in medicine and surgery.
8. Includes obstetrics.
9. Includes neurosurgery.
10. Not a hospital; outpatient and home delivery service.
11. Training includes two years of service at City of Detroit Receiving Hospital in gynecology and two years at Herman Kiefer Hospital in obstetrics.
12. Orthopedic resident covers eye, ear, nose and throat service.
13. Apply to chief of service for information about affiliating hospitals.
14. Three assistant residents serve six months in obstetrics.
15. Separate appointments approved in roentgenology and in radiation therapy.
16. Includes dermatology.
17. Several services include obstetrics-gynecology.
18. Private and semi-private pavilions.
19. Admissions are confined to children.
20. No applications received.
21. Affiliating; usually with N. Y. Post-Graduate Medical School, New York City
22. Includes thoracic surgery.
23. Hospital service confined to treatment of narcotics.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, AUGUST 27, 1938

EXAMINERS AND GRADING

In the selection of students for advanced work in college and for the professional schools, the record of previous scholastic aptitude as measured by "grades" is usually an important criterion. The proper interpretation and weight of high school and college grades have become an increasing concern of administrators in universities and professional schools. Hutchinson and Pugh [1] studied the differences in marks assigned not only by different examiners but also by the same examiner in the same subject for the same students at different times. In other words, they examined the examiners, tabulating the marks obtained by a group of twenty-five students in a series of examinations in eight subjects over a period of a year. Grades were recorded according to the decimal system. All the grades in each subject were totaled both for class work and for individual examinations. These totals were then subjected to analysis in relation to several variables, including individual students, individual instructors and the same instructor at different times. The marking for class work was found to be distinctly more lenient than that for examinations in most of the subjects. More surprising were the variations in total marks given by an individual examiner in different tests in the same subject. The higher differential grades for the same group of students in some subjects than in others was also striking. Apparently examiners differed among themselves as much as did the students. It is, however, a simple matter to adjust the students' marks to a common basis by allotting the same total for the class in all subjects. Gross deviations from the accepted standard due to the individual instructor's liberality or strictness in grading can thus be detected and corrected by simple algebraic adjustment.

More serious, Hutchinson and Pugh believe, is the discovery that an examiner often varies widely in his standard of marking the same group in the same subject after an interval of two or three months. This source of variation is more difficult to control and should receive the attention of those who are responsible for the disposition of candidates for universities or professional schools. This variation in performance of examiners affects the choice of medical as well as other university students. It may affect also the certification of specialists.

Other known factors in student records have already received the consideration of advanced university and professional school administrators. President Conant [2] of Harvard in a recent report to the Board of Overseers states that there is an ever growing interest in defining each student's aptitudes and interests. As he points out, however, a man's success or failure in a professional school has been proved to be highly correlated with his record of college work. At Harvard the previous school record is corrected for the varying scholastic standards. To such adjustment it would now seem wise to add a factor of correction for those students whose scholastic average has been affected by unjustified variation in grading by examiners. The large extent to which the selection of medical students is influenced by present procedure insures the continued vital interest of the medical profession in this subject.

1. Hutchinson, J. B., and Pugh, B. M.: A Note on the Importance of Differences Between Examiners in the Estimation of the Ability of Students, Ann. Eugenics **8**: 107 (Jan.) 1938.

2. Conant, J. B.: Report of the President of Harvard University to the Board of Overseers, 1936-1937.

LOCAL IMMUNIZATION OF THE NASAL MUCOSA

According to Walsh and Cannon [1] of the departments of surgery and pathology, University of Chicago, regional vaccination is the method of choice in the attempt to increase the specific portal resistance of the upper respiratory tract. Local vaccination allegedly gives a much higher concentration of specific antibodies in respiratory tissues than that obtained by active or passive somatic immunization.

The initial studies of local immunity of respiratory tissues by Walsh and Cannon [2] were made with type I pneumococcus infections in rabbits. They found that nasal instillation of relatively small volumes of virulent pneumococcus cultures into normal rabbits led to a fatal septicemia in about 90 per cent of the cases. Intranasal vaccination with a formaldehyde killed or autolyzed pneumococcus culture of the same type, however, conferred practically complete immunity against subsequent intranasal infection with the same strain. Local nonspecific irritants, such as alum, tannic acid or killed paratyphoid cultures, were without demonstrable effect. Intragastric immunization with the same pneumococcus vaccine gave little or no demonstrable increase in nasal resistance. Since intranasally vaccinated rabbits may have no demonstrable protective

1. Walsh, Theodore E., and Cannon, Paul R.: J. Immunol. **35**: 31 (July) 1938.

2. Walsh, Theodore E., and Cannon, Paul R.: J. Immunol. **31**: 331 (Oct.) 1936.

antibodies in the blood stream, as determined by the mouse protection test, the investigators concluded that local vaccination presumably caused a strictly local specific tissue immunity, the nature of which is at present unknown.

In order to throw light on the nature of this local tissue immunity, Walsh and Cannon [2] extended their studies to include Bacillus typhosus and Bacillus paratyphosus. Following routine somatic immunization with these vaccines, relatively high specific agglutinin titers develop in the blood stream, with about one tenth of this titer in aqueous extracts of the exsanguinated nasal mucosa. A blood titer of 1:4,000, for example, was usually associated with a 1:500 titer in the nasal extract, or a blood titer of 1:2,000 with a 1:250 tissue titer. A different quantitative relationship was observed after intranasal vaccination. Here the tissue titer humoral titer ratio was usually increased at least twofold. In many instances the tissue agglutinins were of equal or even greater titer than those of the blood stream.

The investigators are inclined to interpret their results as evidence of a local formation of antibodies in nasal tissues. A qualitative identity of local tissue agglutinins and humoral agglutinins, however, has not yet been established. Conceivably tissue agglutinins and humoral agglutinins are of different specificities. The authors make the general conclusion that "regional vaccination would seem [to be] the preferable method of elevating the level of resistance of tissue at the portal of entry to the body." Whether or not the prophylactic efficiency can be increased by combining regional and somatic vaccination has not yet been determined.

FRANCE MAKES DIPHTHERIA IMMUNIZATION COMPULSORY

The Senate and the Chamber of Deputies of the republic of France passed a regulation making diphtheria immunization compulsory. This was promulgated by the president on June 25. The law reads: [1]

> Antidiphtheria vaccination with l'anatoxine (toxoid) is compulsory during the second or third year of life. The parents or guardians are personally responsible for the carrying out of this measure, proof of which shall be furnished on admission to any school, nursery, vacation colony, or other assembly of children.
>
> During the first year of application of the present article, all children under 14 years of age attending the schools, if they have not yet been vaccinated against diphtheria, shall be subjected to such vaccination.

The regulations for administration are to be rendered "according to the opinion of the Academy of Medicine and the Consultative Committee on Public Health of France."

This action is apparently the first by a major nation to make diphtheria immunization compulsory and universal. No penalty clause is attached to the measure as published nor is any authority to establish penalties specifically delegated to the Academy of Medicine and the Consultative Committee on Public Health, although the measure does say that these "shall decide the measures necessitated by the application of the preceding provision." The measure does provide that an immunized child shall not be admitted to any school, nursery, vacation colony or other assembly of children. This leaves an alternative for those persons who may be able to keep their children out of assemblages by employing private tutors or evading compulsory education regulations, such as may exist in France. Obviously, such legislation cannot be enforced without a large force of investigators and administrators.

From the scientific point of view the provision that toxoid shall be administered during the second or third year of life is interesting. The practice in this country, supported by overwhelming consensus of medical and public health opinion, is to advocate diphtheria immunization as early as the eighth month and not later than the first year. This is on the basis of mortality experience. The highest diphtheria mortality is in the first two years of life and there is little mortality after 5. Yet for the first year the French act requires all children under 14 years of age to be immunized against diphtheria and furthermore to be immunized with toxoid. Experience in the United States with untoward reactions following toxoid has led to the general practice of limiting its use to children under 12, toxin antitoxin being used for older persons who, because of special liability to exposure to diphtheria, may require immunization.

Undoubtedly the new law will aid in preventing epidemics if it is even reasonably well enforced. Godfrey [2] showed that immunization of 30 per cent or more of the children of preschool age will break the chain of infection and prevent epidemics. It will not, however, prevent the appearance of sporadic cases. As diphtheria recedes from the epidemic status it also recedes from the public consciousness. Sporadic cases are more likely to go unrecognized and therefore to be neglected. This causes a trend toward a low morbidity incidence and low mortality on a population basis, but a high case fatality rate.

The experience of the United States with immunization against diphtheria has shown that constructive and persistent local leadership and education are effective in eliminating diphtheria. The experience of France with compulsory immunization should be watched with interest as a comparison. After ten years of observation, which may include two epidemic cycles of uncontrolled diphtheria, the truth about the success or failure of compulsory immunization may be determined.

1. Diphtheria Immunization Made Compulsory in France, Pub. Health Rep. **53**: 1301 (July 29) 1938.

2. Godfrey, E. S., Jr.: Study in the Epidemiology of Diphtheria in Relation to the Active Immunization of Certain Age Groups, Am. J. Pub. Health **22**: 237 (March) 1932.

Current Comment

DOCTORS IN EMBRYO

The annual review of medical education, appearing elsewhere in this issue, presents a summary of the most important phases of medical education in the United States and Canada. These data show the kind and extent of preliminary education which is required for admission to medical schools, also the requirements for graduation and licensure. The number of schools and the number of medical students over a period of more than thirty years show clearly the effects of raising educational standards and, more recently, of the enormous increase of the college population since the war. During the past year there were in the United States 5,194 medical graduates, of whom 237 were women. Some 636 foreign graduates were licensed. Regardless of academic or legal requirements, practically all students serve a hospital internship and many prolong this training by a further period of apprenticeship as hospital residents. The lists of hospitals approved for these purposes is therefore of inestimable value. The supervision of medical schools by the Council on Medical Education and Hospitals through periodic reports and personal visitation is a potent factor in raising the standards of medical education and practice.

RESPIRATORY DISABILITY IN SILICOSIS

While in search of a simple method of determining the efficiency of the respiratory apparatus, Schlomovitz and his co-workers[1] recorded the variations in oxygen usage when measured by the increased oxygen demand occuring after a standardized form of physical activity. The closed circuit apparatus was used. On from three to five separate days, subjects were exercised after a twelve hour postabsorptive resting period. The exercise was carried out for from forty-five to sixty seconds and consisted of the twenty-five-time repetition of the shoulder to floor carriage of a 10 pound dumbbell grasped in each hand, or roughly, 5,000 foot pounds of work. In some instances from five to fifteen seconds elapsed after exercise before the tracings were started. The postexercise determinations were made with the subject breathing into the ordinary basal metabolism recording apparatus containing practically pure oxygen. For this part of the test no corrections were made for temperature, humidity or barometric pressure. Six groups were investigated in this manner: healthy persons and patients having thyroid dysfunction, tachycardia, cardiovascular disease, emphysema and silicosis. Although the number of subjects was not large the results on the whole were quite clear cut, and consistency in reaction on different days was evident. Five emphysematous patients without detectable cardiovascular disturbances gave oxygen consumption figures of a definitely lower range than the healthy subjects. The three patients with organic heart disease showed much higher than normal. The group with chronic silicosis values in general showed a tendency to drop below the range for healthy persons, which was especially true for those with an uncomplicated second-stage silicosis. Three patients, however, with both second-stage silicosis and organic heart disease had values which reverted to the range of the healthy group, this apparently representing a summation of abnormal values in opposite directions. Schlomovitz and his co-workers believe that consistently abnormally low response to oxygen consumption after exercise in cases of second-stage silicosis is an indication of the presence of a functional or physical disability. Whatever the ultimate verdict on its adequacy as a clinical test, an interesting additional method of study has now become available.

1. Schlomovitz, B. H.; Thompson, A. B., and Glickman, L. G.: A Functional Test in Chronic Pulmonary Disease, Am. Rev. Tuberc. **37**: 369 (April) 1938.

GRADUATE MEDICAL EDUCATION

The higher levels of medical training hold for the moment the center of the stage. Several factors contribute to this focusing of public interest. In the larger cities, at least, medicine is practiced increasingly by those who limit their work to a special field. One of the major divisions of graduate medical education deals with the preparation of the specialist. Examining boards in the specialties have formulated their requirements in terms of advanced study and have stimulated a demand not only for instruction in those phases of medical science related to the specialties but also for supervised clinical experience in the form of apprenticeships of adequate duration and graded responsibility. These apprenticeships are, as a rule, institutional rather than personal and are commonly called residencies. On page 832 is a list of approved residencies containing 3,700 services in twelve specialties in 451 hospitals as a part of the program for the training of specialists. Some institutions offer fellowships which are indistinguishable from residencies but which, in general, tend to lay more stress on systematic instruction and research. For those physicians who are not specialists, continuing instruction is no less important. The ever widening horizon of medical science and the constant development of medical skill in diagnosis and treatment make it imperative for every practitioner to keep abreast of the times by assimilating whatever is of permanent value in the mass of new material presented to the profession. To this end postgraduate schools have been established and postgraduate courses are offered by a number of universities. Such courses have, on the whole, been most profitable to the physicians who attend them, yet there are some who cannot readily leave their practices to avail themselves of these opportunities. To meet the needs of this group extension courses have been organized, usually under the auspices of a state medical society, which bring facilities for instruction almost to the doctor's door. On page 801 is a summary of the survey of this type of teaching which the Council on Medical Education and Hospitals has been conducting during the past year. Evidence collected from half of the states abundantly demonstrates the value of these efforts to enable the somewhat isolated practitioner to enjoy frequent association with the leaders of the profession.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

New Maternity Center.—The establishment of a maternity center in Jonesboro is under way, newspapers reported June 3. It is planned to offer complete maternity service through regularly conducted clinics for antepartum care with hospitalization for delivery. Only indigent and low income groups will be eligible for the service. The center will be conducted by the medical staff of St. Bernard's Hospital with the assistance of the American Legion auxiliary and the state board of health. In quoting figures showing the need for a unit in the county, it was stated that infant mortality in the state was 52.2 per thousand live births in 1937, while rural Craighead County showed a rate of 72.2 and Jonesboro a rate of 114.3 for the same period.

CALIFORNIA

Personal.—Dr. Charles Weiss, director of the research laboratories of Mount Zion Hospital, San Francisco, has received a grant from the committee on medical research of the National Tuberculosis Association to be used for a study of the nature of the lysis of tubercle bacilli in cellular exudates. Dr. Weiss will be assisted by Alex Kaplan, formerly research fellow in physiology, University of California.——Dr. Ambrose P. Merrill Jr. has been appointed assistant superintendent of the San Francisco County Hospital, San Francisco.——Dr. Fred H. Lawrence has been appointed medical director of the Southern Pacific Hospital, San Francisco.——Dr. Archibald W. Truman, Bellflower, head of the medical department of the world's general conference of Seven Day Adventists, has been appointed superintendent of the denomination's sanatorium in Shanghai, China.

COLORADO

University News.—Under the will of the late Dr. William C. Johnson, professor of pathology, University of Colorado School of Medicine, Denver, this school, on the death of relatives, will receive the remainder of a $35,000 trust fund for study and research of the pathology and diseases of infancy and childhood. The will also bequeathed Dr. Johnson's medical books to the school library.

State Medical Meeting in Estes Park.—The Colorado State Medical Society will hold its sixty-eighth annual session at the Stanley Hotel, Estes Park, September 8-10, under the presidency of Dr. William T. H. Baker, Pueblo. Out of state speakers will include:

Dr. Irvin Abell, Louisville, Ky., President, American Medical Association, The Acute Abdomen: Differential Diagnosis.
Dr. James W. Kennedy, Philadelphia, Vaginal Hysterectomy and Its Indications.
Dr. Claude D. Head Jr., Washington, D. C., Serum Therapy in Pneumococcic Pneumonia and Recent Reduction in Pneumonia Mortality Rates.
Dr. Gilbert J. Thomas, Minneapolis, Diagnosis and Treatment of Subacute and Chronic Lesions of Tuberculosis in the Genital Tract.

Included among the Colorado physicians on the program are:

Drs. Edward R. Mugrage and George W. Stiles, Jr., Denver, Common Animal Parasites Transmissible to Man.
Dr. Charles Walter Metz, Denver, Choice of Anesthetic Agent.
Walter M. Scott, Ph.C., Denver, How to Secure a Safe Milk Supply.
Dr. Vernon G. Jeurink, Denver, The Office Treatment of Common Rectal Disorders.
Dr. Clarke H. Barnacle, Denver, Newer Methods of Treatment in Psychiatry.
Dr. Luman E. Daniels, Denver, Brain Tumors with Focal Symptoms.
Dr. Lyman W. Mason, Denver, Role of the Thyroid in Menstrual Disorders and Sterility.
Dr. John H. Spillane Jr., Colorado Springs, X-Ray Pelvimetry.
Dr. John B. Farley, Pueblo, Treatment of Placenta Praevia.
Harold Clark Thompson, LL.B., Denver, What Is Expected of the Physician and Surgeon in Compensation Cases?
Dr. William Senger, Pueblo, The Problem of Difficult Inguinal Hernias.
Drs. George B. Kent and Kenneth C. Sawyer, Denver, Exophthalmic Goiter: Management of the Poor Surgical Risk.
Dr. Edgar Durbin, Denver, Heart Disease in Colorado.
Wilton W. Cogswell, D.D.S., Colorado Springs, Oral Lesions as Sources of Infections: Their Diagnosis and Treatment.
Dr. Kemp G. Cooper, Denver, Causes of Dizziness.
Dr. William C. Service, Colorado Springs, The Role of Allergy in Migraine.
Dr. Franklin P. Gengenbach, Denver, Present Status of Contagious Diseases of Childhood: Prevention and Treatment.
Drs. Carl S. Gydesen and Bradford J. Murphey, Colorado Springs, Some Endocrine Dyscrasias Associated with Conduct Disorders in Colorado Springs Children.

There will be a symposium on automobile fractures and round table discussions. At the annual banquet Dr. John W. Amesse, Denver, will give an address entitled "Behind the Scenes in European Medicine."

ILLINOIS

Dr. Shaughnessy Again Director of Laboratories.—Howard J. Shaughnessy, Ph.D., for the past year associate professor of bacteriology and public health at the University of Colorado School of Medicine, Denver, is again director of laboratories of the state department of health. Dr. Shaughnessy held the position from 1930 to 1937, when he went to Denver.

Chicago

Society News.—The Chicago Council of Medical Women was addressed June 8 by Drs. Irene C. Sherman on "Psychosis in Children" and Beulah C. Bosselman, the treatment of psychoses; Dr. Melvin F. O. Blaurock showed a motion picture on metrazol treatment.

New Neuropsychiatric Unit.—Construction is expected to start late this year on a neuropsychiatric institute on the grounds of the Research and Educational Hospital, according to the state department of public welfare. The building will cost $1,250,000, of which $544,909 was supplied by a PWA grant. Present plans call for two towers of eight floors each to be connected by a two story unit. Fifty beds will be available for neurologic patients, while 100 will accommodate psychiatric patients. Arrangements have been made whereby the four medical schools in the city, Illinois, Northwestern, Chicago and Loyola, will have access to the psychiatric beds for teaching purposes. Twenty beds have been allotted to Dr. Paul L. Schroeder, director, Institute for Juvenile Research, for study and research. The neuropsychiatric institute will be administered by Dr. Major H. Worthington, director of Research and Educational Hospital; Drs. Harold Douglas Singer, professor of psychiatry, and Eric Oldberg, professor of neurology and neurological surgery, University of Illinois College of Medicine, will direct the psychiatric and neurologic divisions, respectively.

IOWA

Personal.—Drs. George B. Maxwell, Davenport, and George A. Wiggins, Milan, were recently presented with gold buttons by the Iowa and Illinois Central District Medical Association in recognition of their completion of fifty years in the practice of medicine.

Society News.—A special meeting of the Linn County Medical Society was addressed in Cedar Rapids August 9 by Drs. William D. Haggard, Nashville, Tenn., on "Clinical Syndromes of Gallbladder Disease, Their Differentiation and Treatment," and Gershom J. Thompson, Rochester, Minn., "Transurethral Resection of the Prostate." Dr. James S. McLester, Birmingham, will discuss "Clinical Aspect of Nutritive Deficiency" before the society September 15.——At a meeting of the Dallas-Guthrie County Medical Society in Woodward July 21 the speakers included Drs. Lawrence D. Smith, Des Moines, on "Fundamentals of Endocrinology" and Ralph A. Reis, Chicago, "Treatment of Fibroids in Pregnancy."——Dr. James J. Morrow, Austin, Minn., discussed military medicine before the Fayette County Medical Society July 21.——The Hardin County Medical Society was addressed in Eldora July 29 by Dr. Milo G. Meyer, Marshalltown, on psychoneurosis.——Dr. Arthur E. Davis, Seymour, addressed the Wayne County Medical Society July 14 on rheumatism.

LOUISIANA

New Director of Child Welfare.—Dr. Christopher L. Mengis, Winnsboro, formerly director of the Franklin Parish health unit, has been appointed director of the division for services to crippled children in Louisiana. While the division was created by the 1936 legislature, no funds were available until 1938, when an appropriation was made. Now in process of organization, the division will be managed by the bureau of parish health administration of the state board of health. Dr. Mengis graduated at Tulane University of Louisiana School of Medicine, New Orleans, in 1900. Recently he has been conducting clinics for crippled children throughout the state.

Women in Medicine.—An exhibit of memorabilia showing the history of women in medicine is now on display at the Rudolph Matas Library, Tulane University of Louisiana School of Medicine, New Orleans. Some were lent to the library by the Orleans Parish Medical Society and others represent the personal collection of Dr. Mary Elizabeth Bass, assistant professor of clinical medicine at Tulane, a former president of the American Medical Women's Association. Illustrations include a copy of the most ancient known pictorial record of a woman physician, dated 3000 B. C.; it shows a woman physician presenting a boy to Isis; the patient has poliomyelitis. Others show a woman teaching anatomy to a fourteenth century class, a picture of Ann Morandi Manzolini dissecting a brain in 1760, a sketch of Lady Mary Montagu, pioneer sponsor of vaccination for smallpox, and a picture of St. Elizabeth and her thirteenth century dispensary. Among other material of historical interest is a photograph of Dr. Elizabeth Cohen, the first woman physician in New Orleans, who died in 1921.

MARYLAND

Committee on Industrial Health.—At a meeting of the council of the Medical and Chirurgical Faculty of Maryland in Baltimore June 27 the following committee on industrial health was appointed: Drs. Allen D. Lazenby, chairman, Nathan B. Herman, William H. Howell, Raymond H. Hussey, Frank S. Lynn, Esther L. Richards, Robert H. Riley, Harry M. Robinson and Huntington Williams, all of Baltimore; Victor F. Cullen, State Sanatorium; William D. Noble, Easton; Edward P. Thomas, Frederick, and Richard B. Norment Jr., Hagerstown.

Conference of Social Welfare.—The Maryland State Conference of Social Welfare held its annual meeting in Baltimore June 9-11. The program was devoted to section meetings on tuberculosis, vocational education and rehabilitation, trends in recreational programs, community adjustment of the mentally deficient, community problems in the care of children discharged from institutions, rural and urban housing problems, and problems of special significance in the care of dependent children and the administration of relief. The speakers in the symposium on tuberculosis included:

Dr. Thomas B. Aycock, University Hospital.
Dr. Humphrey Warren Buckler, city health department of Baltimore.
Mr. W. B. Matthews, state tuberculosis association.
Dr. Huntington Williams, commissioner of health of Baltimore.
Dr. William A. Bridges, superintendent, Eudowood Sanatorium.
Miss Pauline Bushey, board of state aid and charities.
Dr. William Ross Cameron, deputy state health officer, Hagerstown.
Dr. Charles H. Halliday, epidemiologist, state department of health.
Mrs. Jean Loosli, nutritionist, state department of health.

MICHIGAN

Personal.—Dr. Charles E. Long has resigned as a member of the board of education of Grand Haven after sixteen years' service.——Dr. Cornelius D. Mulder recently retired as a member of the Spring Lake board for education, having served for twenty-two years.——Dr. Vladimir K. Volk, Saginaw, was recently appointed to fill the newly created position of medical superintendent of Saginaw County hospitals; he is also health officer of the county.

Hospital Building Program.—The W. K. Kellogg Foundation of Battle Creek, the WPA and the PWA are cooperating with the communities of Allegan, Coldwater and Hillsdale in hospital building projects. Federal approval has already been given to a unit in Coldwater and work was expected to begin within a few days, it was reported July 31. Fifty beds are planned for the hospital. The units in Allegan and Hillsdale will have twenty-eight and sixty beds respectively, if they are approved by the government. The total cost of the units will be $600,000, one half of which will be contributed by the Kellogg Foundation.

MINNESOTA

CCC "Surgeon" Court-Martialed and Dismissed.—Hugh David Halstead, following his plea of guilty in the District Court at Minneapolis, June 1, to a charge of practicing medicine without a license, was sentenced to one year in the Minneapolis workhouse and placed on probation, according to the state board of medical examiners. The defendant had been tried before a military court at Fort Snelling April 19 on a charge of misrepresenting his rank as an officer and misrepresenting his qualifications as a physician. He pleaded guilty to both charges and was dismissed from the military service of the United States. In 1934 Halstead, after working as a truck driver and shoe salesman, worked as an intern at the Minneapolis General Hospital. From Jan. 1, 1935, to June 25 he was an intern at the Deaconess Hospital, Minneapolis, at a salary of $50 a month. When subsequent inquiry was made at the Deaconess Hospital as to why no investigation had been made of Halstead's credentials as a physician, officials at the hospital stated that because he had been at the Minneapolis General Hospital it was assumed that his credentials were in order. July 5, 1935, after fraudulently representing himself as a physician and a graduate of the Northwestern University Medical School and that he was licensed to practice medicine in Illinois, Halstead signed a contract to act as surgeon for the CCC camps in Minnesota. No investigation was made at that time to ascertain his qualifications. He was assigned to various camps, receiving a commission in September 1935 as a first lieutenant in the medical reserve corps of the U. S. Army; this commission was obtained on his fraudulent representations with respect to his medical training. Following his marriage in 1936 Halstead was paid $262 a month by the government. In February 1938 inquiry was made concerning his qualifications, which led to his court-martial April 19. The only medical education he ever received was in the extension division of the University of Minnesota 1930-1931, when he was enrolled in a class in general inorganic chemistry. In the year 1931-1932 he failed in a similar course at the university.

MISSISSIPPI

Changes in Health Officers.—Dr. Benjamin F. Hand Jr., formerly of Waynesboro, has been appointed itinerant health officer for the state board of health to aid county health officers in the examination of preschool children, it is reported. Dr. Benjamin A. Stafford Jr., formerly of Temple, Texas, has been appointed health officer for the Sharkey-Issaquena county unit, succeeding Dr. Robert H. De Jarnette, who was transferred to Alcorn County. Sharkey and Issaquena counties made joint appropriations for a combined full time health unit with centers in each county.

MISSOURI

Society News.—The Northeast Missouri Medical Society was organized at a meeting of physicians of Clark, Scotland and Lewis counties in Kahoka recently. Dr. James R. Bridges was elected president and Dr. Harold G. Pudleiner, Canton, secretary.

Hospital Association Adopts District Plan.—To correlate its activities, the Missouri Hospital Association has divided the counties of the state into four districts, with a chairman in charge of each. It is planned to draw the various hospital workers of the state into these four units, each to serve as a center for the hospitals in the district. The units will be known as the Northeast, Southeast, Southwest and Northwest districts. The Missouri Hospital Association began in August to publish a monthly bulletin.

MONTANA

Scientific Session of State Society.—The Medical Association of Montana will hold its annual scientific session in Lewistown September 5-6 with the Fergus County Medical Association acting as host. The following will speak:

Dr. Archibald F. O'Donoghue, Sioux City, Fractures of the Spine and Pelvis Associated with Other Injuries Following Automobile Accidents.
Dr. John R. Kleyla, Omaha, Pneumonia.
Dr. Raymond W. McNealy, Chicago, Are Herniorrhaphies as Successful as They Should Be?
Dr. Ashley W. Morse, Butte, The Sinus Problem.
Dr. Lawrence G. Dunlap, Anaconda, Accuracy in Eye Examinations.
Dr. Robert G. Allison, Minneapolis, X-Ray Therapy as Related to Treatment of Sinus Disease, Erysipelas and Skin Conditions.
Dr. Henry Close Hesseltine, Chicago, Endocrinology in Gynecology.

Dr. Irvin Abell, Louisville, Ky., President, American Medical Association, will deliver the principal address at the annual banquet September 5 on "The Changing Social Order of Medicine." Dr. James C. MacGregor, Great Falls, president, state medical association, will also speak, and Dr. Thomas J. B. Shanley, Butte, will be the toastmaster. The Montana Academy of Oto-Ophthalmology will meet in Lewistown September 4.

NEBRASKA

Personal.—The Scotts Bluff County Medical Society honored Dr. Frank W. Plehn, Scottsbluff, at its June meeting in recognition of his completion of forty-five years of practice; he has practiced thirty-one years in Scottsbluff.——Dr. and Mrs. Charles W. Doty, Beaver Crossing, were recently honored with a community reception in recognition of Dr. Doty's fiftieth anniversary in practice.——George Robert Coatney, Ph.D., professor of biology, State Teachers College, Peru, has been appointed protozoologist of the U. S. Public Health Service.

NEW HAMPSHIRE

Society News. — Dr. Lawrence R. Hazzard, Portsmouth, was elected president of the New Hampshire Surgical Club at the annual meeting recently in Nashua. Drs. Charles F. Nutter, Nashua, and William J. Paul Dye, Wolfeboro, were elected vice president and secretary, respectively. At a joint session with the Hillsborough County Medical Society Dr. Harold G. Lee, Boston, spoke on "Low Back Pains."

NEW YORK

Outbreaks of Typhoid.—Five cases of typhoid occurred between June 23 and July 8 among a group of workmen building roads in Columbia County. The outbreak was attributed to drinking water, which was obtained from two springs known to have been polluted, though the exact source of the infection had not been determined, according to *Health News*.——Thirteen cases of typhoid appeared among residents and visitors in the village of Esperance during July. The only food or drink common to all the patients was raw milk. Investigation showed that on June 15 the dairy that supplied the families affected had begun to obtain extra milk from a new producer, who was found to be a carrier. He had previously sold his milk only to an ice cream plant, where there was adequate pasteurization.

Federal Worker Denied Choice of Physician.—Five WPA workers in Buffalo, injured June 27 while working on the new Buffalo Civic Stadium, were taken to the Marine Hospital, although other hospitals were nearer, because they were federal workers, according to the *Bulletin* of the Medical Society of the County of Erie. The president of the county medical society took exception to this action because it denied free choice of physician or hospital, as provided in the workmen's compensation law of New York. On inquiry the families of the injured workers agreed that they preferred to have the services of their family physicians. One family physician, however, visited his patient at the Marine Hospital and was not allowed to treat him as a compensation case. The industrial commission of the state, when asked for a ruling in this case, stated that "when employees are in WPA service, the state of New York has no jurisdiction and the Compensation law does not cover, as they are employed by and paid 100 per cent by the Federal Government."

New York City

Personal.—Dr. Carl Eggers was elected president of the Alumni Association of the College of Physicians and Surgeons of Columbia University at its recent annual meeting. Dr. Louis M. Rousselot is secretary.

Burn Six Tons of Marihuana.—More than six tons of marihuana, valued at $13,000, was burned by narcotic control officials July 29 in Brooklyn. The collection was gathered from fields in the five boroughs by the Narcotic Bureau of the Municipal Police Department.

A New Foundation.—The William J. Wollman Foundation was recently organized by the executors of Mr. Wollman's estate to administer a trust fund of $5,000,000, which will become available on the death of Mr. Wollman's sister, to be devoted to public charitable, educational and scientific purposes. Mr. Wollman, formerly head of the securities firm of William J. Wollman and Company, died March 27, 1937.

Course on Eye Conditions.—New York University and Columbia University are again offering courses on eye conditions in cooperation with the bureau of services for the blind, New York State Department of Social Welfare, it is announced. The course is given in evening sessions at both universities and is attended by teachers, social workers, school and public health nurses and workers in allied fields. Inquiries may be addressed to the Secretary, Teachers College, Columbia University, 525 West One Hundred and Twentieth Street; Prof. Helen C. Manzer, School of Education, New York University, Washington Square, or Miss Ruth B. McCoy, director, prevention of blindness service, New York State Department of Social Welfare, 205 East Forty-Second Street.

Cornell to Exchange Students with Havana.—Committees representing Cornell University Medical College and the University of Havana Faculty of Medicine have arranged for exchange of students and teaching staff for periods of study. Four undergraduate students and/or members of the teaching staff of Cornell will study parasitology, tropical diseases or any other subject of special interest for six weeks in the summer in Havana under the auspices of the university. Three undergraduates in medicine and/or members of the teaching staff of the University of Havana will have the opportunity of studying at Cornell for a period of eight weeks, one each in the fall, winter and spring. Each university agreed to grant to each visitor on satisfactory completion of the work a certificate covering the studies pursued and the time employed thereon. The studies at the respective schools will be supervised by special committees. Dr. Wilson G. Smillie is chairman of the committee at Cornell and Dr. Alberto Inclán of the one in Havana. The agreement is in effect for one year.

NORTH CAROLINA

News of Health Officers.—Dr. Gaston W. Rogers, U. S. Army Medical Corps, retired, has been appointed assistant district health officer on a full time basis in charge of Chatham, Person and Orange counties with headquarters in Pittsboro, it is reported.——Dr. Fletcher R. Adams, formerly of Davidson, has been appointed head of the health unit in Union County. ——Dr. Murray P. Whichard, Edenton, has been appointed health officer of Craven County, succeeding Dr. John S. Anderson, New Bern, who recently went to Cabarrus County.

Open Campaign Against Syphilis.—The North Carolina state board of health opened its campaign against syphilis July 1, when funds became available from the Reynolds Foundation, created several months ago by the North Carolina tobacco family, and from the U. S. Public Health Service under the LaFollette-Bulwinkle law. About $120,000 furnished by the Reynolds Foundation will be spent in twenty counties enlarging and increasing the number of clinics. Forty-eight clinics are now operating in these counties and it is expected that thirty-five physicians and as many nurses will shortly be added to their staffs. Cities and counties in this group will match the funds supplied by the Reynolds Foundation. For the area outside these twenty counties the board of health has a state appropriation of $25,000 a year and a federal grant of $85,000, and much of this money will be matched by city and county appropriations.

OHIO

Personal.—Dr. Joseph T. Smith, assistant clinical professor of obstetrics, Western Reserve University School of Medicine, Cleveland, has joined the faculty of Tufts College Medical School, Boston, to conduct short courses in gynecology and obstetrics for general practitioners under the graduate education plan of the Bingham Associates Fund.

Honored for Fifty Years of Practice. — Dr. John G. Wishard, Wooster, was the guest of honor at the annual banquet of the Wayne County Medical Society in Orrville recently, celebrating his completion of fifty years in the practice of medicine. Dr. Wishard, who graduated from the Medical College of Indiana, Indianapolis, in 1888, founded the American Hospital in Teheran, Persia, and was its director for twenty years.——Dr. Frederick S. Heller, Oak Harbor, received a gold plaque from the Ottawa County Medical Society at a meeting in Danbury July 21, in honor of his fifty years of medical practice. Dr. Heller graduated from the University of Michigan Medical School, Ann Arbor, in 1888.

PENNSYLVANIA

District Meeting.—The annual meeting of the Sixth Councilor District of the Medical Society of the State of Pennsylvania was held at the Birmingham School, Birmingham, August 25. The speakers included Drs. Charles W. Dunn and Gilson C. Engel, Philadelphia, on "Review of Newer Aspects of Endocrine Therapy" and "Diseases of the Thyroid, Their Diagnosis and Treatment" respectively. Dr. Peter H. Dale, State College, gave a history of the Center County Medical Society and several officers of the state society discussed current social and economic questions.

Philadelphia

Society News. — The Philadelphia College of Physicians will receive all pamphlets and data on tuberculosis accumulated by the late Dr. Lawrence F. Flick, according to a specific bequest in his will, newspapers report.

Personal.—Dr. Hayward R. Hamrick has been appointed medical director of the Curtis Clinic of Jefferson Medical College.——Dr. Chevalier Jackson has been reelected president and professor of bronchoscopy at the Woman's Medical College of Pennsylvania. Although Dr. Jackson has retired from clinical work, he will continue with didactic teaching. Temple University School of Medicine announces that Dr. Jackson has

resigned as professor of bronchoscopy and esophagology and has been elected honorary professor of broncho-esophagoscopy. He has also been designated consultant in research in the broncho-esophagologic laboratories at Temple.

SOUTH CAROLINA

Piedmont Assembly.—The fourth annual Piedmont Post Graduate Clinical Assembly will be held at the Anderson County Hospital, Anderson, September 13-15. Among the speakers will be Drs. Samuel F. Ravenel, Greensboro, N. C., on "Nephritis in Children"; Kenneth M. Lynch, Charleston, "Lung Changes in Pneumonia," and William H. Kelley, Charleston, "Management of Lobar Pneumonia." On the last day there will be a joint meeting with the South Carolina division of the Southeastern Surgical Congress, with Drs. Frank H. Lahey, Boston, and Robert Lee Sanders, Memphis, Tenn., on "Diseases of the Thyroid Gland" and "Common Diseases of the Colon" respectively. The Anderson County Medical Society will sponsor a dinner in the evening at which Dr. Lahey will speak on anesthesia and Dr. Sanders on disease of the gallbladder.

TENNESSEE

Dr. Shoulders Honored. — The Nashville Academy of Medicine gave a dinner July 26 in honor of Dr. Harrison H. Shoulders, Nashville, secretary of the Tennessee State Medical Association and editor of the association's journal, who was elected Speaker of the House of Delegates of the American Medical Association at the San Francisco Session. Dr. Irvin Abell, Louisville, Ky., President of the American Medical Association, made the principal address. Other speakers who paid tribute to Dr. Shoulders included Drs. Elmer L. Henderson, Louisville; William D. Haggard, William B. Anderson, Alfred Blalock and Charles C. Trabue IV, Nashville; Ernest R. Zemp, Tom R. Barry and Elbert G. Wood, Knoxville; Hiram B. Everett, Memphis, and George Williamson, Columbia; Charles Cornelius, attorney, and Judge W. H. Swiggert. Dr. Holland M. Tigert, Nashville, was toastmaster. Dr. William C. Dixon, speaking for the Nashville profession, presented to Dr. Shoulders a gavel "cut from a hickory tree from the home of Andrew Jackson and to be used in presiding over the House of Delegates."

TEXAS

Changes in Health Officers. — Dr. Robert W. Taylor, Lufkin, has been appointed health officer of Lufkin, succeeding Dr. Denman C. Hucherson, resigned.——Dr. Don Price, secretary of the Henderson County Medical Society, has been named health officer of Athens to succeed Dr. John K. Webster.——Dr. Isaac F. Hudson is the new health officer of Stamford, succeeding the late Dr. Nathan H. Bickley.

Hospital News.—The Raymondville Hospital was opened for public inspection June 5. The hospital is owned and operated by Drs. Charles C. Conley and Ervin E. Baden on an open staff basis, any physician in good standing in the Cameron-Willacy Counties Medical Society being permitted to use it.——A new hospital will be constructed in Littlefield costing $50,000 and accommodating twenty-five patients, it is reported.——The new Montgomery County Hospital, Conroe, will soon be ready for patients, it is reported. The building cost $106,000 and will provide for forty patients.

UTAH

Plague Infection.—According to *Public Health Reports*, plague infection was found in tissue from one ground squirrel secured June 28 at the south end of Strawberry Reservoir, Wasatch County, and a pool of 132 fleas collected from fifty-two ground squirrels shot July 2 on Dean Ranch, 1 mile west of Woodruff, Rich County.

WEST VIRGINIA

State Medical Election.—Dr. Ray M. Bobbitt, Huntington, was elected president of the West Virginia State Medical Association at its annual session in White Sulphur Springs July 12, succeeding Dr. Charles W. Waddell, Fairmont. Drs. Harold D. Gunning, Ronceverte, and James L. Blanton, Fairmont, were chosen vice presidents. White Sulphur Springs was again chosen as the place for the next annual meeting.

Society News.—Dr. George E. Gwinn, Beckley, addressed the Fayette County Medical Society, Oak Hill, June 7, on "Collapse Therapy in Pulmonary Tuberculosis."——Dr. Arthur M. Shipley, Baltimore, addressed the Kanawha Medical Society, Charleston, June 14, on "Surgery of the Heart."——At the meeting of the Monongalia County Medical Society, Morgantown, recently, Dr. John C. Kerr, Wheeling, discussed "Common Skin Diseases of Interest to the General Practitioner." Dr. Charles C. Higgins, Cleveland, addressed a joint meeting of Monongalia, Marion and Harrison county medical societies at Morgantown recently on "Prevention of Recurrent Calculus Formation."

WISCONSIN

District Meetings. — The annual meeting of the Fourth Councilor District of the State Medical Society of Wisconsin was held in Lancaster recently. The guest speakers were Drs. Gordon B. New, Rochester, Minn., on "The Diagnosis and Treatment of Mouth Lesions from the Standpoint of the General Practitioner"; John B. MacLaren, Appleton, "Skull Fractures"; James C. Sargent, Milwaukee, "Fundamental Principles in Conservative Renal Surgery," and Edwin F. Schneiders, Madison, "Obstetrical and Gynecological Emergencies." Dr. Sargent, president of the state medical society, also discussed the society's program at the evening banquet.

Meetings of Specialists.—The Central Wisconsin Society of Ophthalmology and Otolaryngology held its recent annual meeting in Marshfield. The speakers were Drs. Avery D. Prangen, Rochester, Minn., on "Anomalies of the Convergence-Divergence Mechanism"; Louis E. Prickman, Rochester, "Allergy in Relation to Eye, Ear, Nose and Throat"; Arthur Kovacs, Milwaukee, "Treatment of Nasal Fractures and Plastic Surgery of the Nose," and Stephan Epstein, Marshfield, "Roentgen Therapy in Eye, Ear, Nose and Throat."——The section on radiology of the State Medical Society of Wisconsin held its annual meeting June 3-4 in Eau Claire. Dr. Edward Schons, St. Paul, was the guest speaker, discussing supervoltage therapy. Round table discussions formed the remainder of the program.

State Medical Meeting at Milwaukee. — The ninety-seventh annual meeting of the State Medical Society of Wisconsin will be held in Milwaukee September 14-16 under the presidency of Dr. Albert E. Rector, Appleton. Guest speakers who will address general sessions include:

Dr. Borden S. Veeder, St. Louis, Relation of the Private Physician to the School Health Program.
Dr. Wright R. Adams, Chicago, Electrocardiography in the Prognosis and Treatment of Diseases of the Heart by the General Practitioner.
Dr. Samuel Brown, Cincinnati, Differential Diagnosis of Abdominal Lesions by Roentgenography.
Dr. David Slight, Chicago, Emotional Problems and Disorders in General Medical Practice (the Rogers Memorial Lecture).
Dr. Charles P. Emerson, Indianapolis, The Power of Suggestion.
Dr. Carey P. McCord, Detroit, Occupational Diseases in Medical Practice.
Dr. William L. Benedict, Rochester, Minn., Office Treatment of Eye Injuries.
Dr. Howard H. Cummings, Ann Arbor, Mich., Office Treatment of Gynecologic Conditions.
Dr. Herman L. Kretschmer, Chicago, The Significance of Blood in the Urine.
Dr. John S. Coulter, Chicago, Indications and Contraindications for Use of Physical Therapy in General Practice.
Dr. Morris Edward Davis, Chicago, Accidents in Labor.
Dr. Max M. Peet, Ann Arbor, Mich., Sympathectomy and Hypertension.
Dr. James H. Hutton, Chicago, Endocrine Preparations of Proved Therapeutic Value.

Dr. John H. J. Upham, Columbus, Ohio, will contribute a commentary on the general program Thursday afternoon. In addition, the following guests will address section meetings:

Dr. Samuel Salinger, Chicago, Septum Deviation in Relation to the Twisted Nose.
Dr. John J. Shea, Memphis, Tenn., Laryngologic Aspects of Hematopoietic Disease.
Dr. Charles B. Puestow, Chicago, Surgery of the Common Bile Duct; The Effect of Drugs on Intestinal Motility.
Dr. Arthur F. Bratrud, Minneapolis, The Injection Method for the Treatment of Hernia.
Dr. Raymond W. McNealy, Chicago, Preparation of the Jaundiced Patient for Operation.
Dr. Harry E. Mock, Chicago, Conservative Treatment of Gallbladder Disease.
Dr. Kretschmer, Management of Prostatic Disease.
Dr. Meyer Wiener, St. Louis, Plastic Surgery of the Lids and Sockets.
Dr. Benedict, Low Grade Occult Inflammatory and Neoplastic Diseases of the Orbit.
Dr. Roger L. J. Kennedy, Rochester, Minn., Intestinal Upsets in Children.

Special features of the meeting will be a symposium on "Common Office Treatments," a "Question Box" Friday afternoon with Dr. Eben J. Carey, Milwaukee, as master of ceremonies, and round table luncheons Thursday and Friday noons at the Hotel Schroeder.

GENERAL

Examination in Urology.—The next examination of the American Board of Urology will be held in New York Jan. 13-15, 1939. All applications should be received not later than October 1. Additional information may be obtained from Dr. Gilbert J. Thomas, secretary, 1009 Nicollet Avenue, Minneapolis, Minn.

Society News.—Dr. Warren T. Vaughan, Richmond, was chosen president-elect of the American Society for the Study of Allergy at its recent annual meeting and Dr. Harry L. Alexander, St. Louis, was installed as president. Dr. Robert L. Benson, Portland, Ore., was elected vice president and Dr. James Harvey Black, Dallas, Texas, secretary. The 1939 meeting will be held in St. Louis, in conjunction with the annual session of the American Medical Association.——The American Association for the Study of Neoplastic Diseases will meet in Washington, D. C., September 8-10.

Coroners to Meet in St. Louis.—The National Association of Coroners will hold its annual convention in St. Louis August 29-31 at the Statler Hotel. Among the speakers will be:

Dr. Samuel H. Gray, St. Louis, Causes of Sudden Death.
Dr. Samuel R. Gerber, Cleveland, Studies of Alcoholism and Its Relation to Traffic Accidents.
Dr. Matthew W. Weis, St. Louis, Signs of Criminal Abortion.
Dr. Downey L. Harris, St. Louis, Pathology and Communicability of Human Rabies.
Dr. Thomas B. W. Leland, San Francisco, Experience as Coroner in Safety Matters.
Gordon H. Scott, Ph.D., St. Louis, Use of the Spectrograph.

Tuberculosis Hospital and Sanatorium Directory.—The National Tuberculosis Association has compiled by states the sanatoriums, preventoriums and general hospitals having departments for tuberculous patients in the United States, Alaska, Hawaii, Puerto Rico and the Philippine Islands. The institutions are listed alphabetically under the several states except that the state sanatoriums are listed first in all cases and the federal government hospitals are listed separately. There is a brief account of each institution, showing when it was opened, its bed capacity, the type of tuberculous patient admitted, and the names of the superintendent and the medical director. Altogether there are listed 749 institutions with 92,786 beds for tuberculous patients. This is an increase of 5,869 beds since 1934, when the previous edition of this directory was published. These figures represent beds actually in operation in April 1938, while an additional 5,126 beds are recorded as under construction or definitely provided for. New state sanatoriums have been opened in Arizona, Florida, Michigan, Mexico, New York City, North Carolina and Texas. There are now available for tuberculous patients in continental United States seventy-eight federal institutions with 8,362 beds, 399 state, county and municipal institutions with 64,042 beds, seventy-one private institutions with 3,493 beds, and 184 semi-private institutions with 13,795 beds.

Physical Therapy and Occupational Therapy Meetings.—The seventeenth annual session of the American Congress of Physical Therapy and the twenty-second annual meeting of the American Occupational Therapy Association will be held at the Palmer House, Chicago, September 12-15. The formal opening session of the congress of physical therapy will be held Monday evening September 12, with welcoming addresses by Drs. Robert H. Hayes, president of the Chicago Medical Society, and Samuel E. Munson, Springfield, president of the Illinois State Medical Society. Dr. Frank H. Krusen, Rochester, Minn., will make his official address as president of the congress on "The Contributions of Physical Therapy to Medicine" and other speakers will be Drs. Alfred W. Adson, Rochester, Minn., on "Chronic Recurring Sciatica: Diagnosis and Treatment of Ruptured Intervertebral Disks" and George Mosser Taylor, Los Angeles, "Manipulative Surgery, a Challenge to the Medical Profession." There will be a general session each day and various section meetings. The program includes symposiums on electroresection, short wave diathermy and peripheral vascular diseases. Wednesday the two organizations will hold a joint meeting at which the speakers will include Drs. Harry E. Mock, Chicago, on "Occupational Therapy in Fractures" and Francis J. Carr Jr., New York, "After-Care of Infantile Paralysis: Braces and Operations." There will also be a joint banquet Tuesday evening with Dr. Krusen as toastmaster. The speakers will include Drs. Morris Fishbein, Editor of THE JOURNAL, Chicago; Irving S. Cutter, dean, Northwestern University Medical School, Chicago, and Joseph C. Doane, Philadelphia, president of the occupational therapy association. The physical therapy congress will conduct an instruction seminar September 7-10.

HAWAII

Society News.—Dr. Edward William Alton Ochsner, New Orleans, gave a series of lectures before the Honolulu County Medical Society, May 23-June 2, on various aspects of surgery. Dr. George W. Swift, Seattle, recently discussed cerebral hemorrhages before the society.

Annual Meeting and Election.—Dr. Harry L. Arnold, Honolulu, was elected president of the Hawaii Territorial Medical Association at the annual meeting of the association in May and Dr. Douglas B. Bell, Honolulu, was reelected secretary. Guest speakers at the meeting included Drs. John L. Reichert, Chicago, on "Treatment of Gonococcic Vaginitis"; John A. Wolfer, Chicago, "Further Evidence That Pancreatic Juice Reflux May Be an Etiologic Factor in Gallbladder Disease"; Edward William Alton Ochsner, New Orleans, "Preoperative and Postoperative Care," and William D. Sansum, Santa Barbara, Calif., "Functional Indigestion."

CANADA

Annual Meeting in Alberta.—The annual meeting of the Canadian Medical Association, Alberta Division, will be held in Calgary September 12-14. The guest speakers include Drs. Louis H. Newburgh, Ann Arbor, Mich.; John S. Coulter, Chicago; Melvin S. Henderson, Rochester, Minn.; Alfred T. Bazin, Montreal; Charles H. Hunter, Winnipeg; William A. Gardner, Winnipeg; Alfred Howard Spohn, Vancouver, and Kenneth A. MacKenzie, Halifax, president of the Canadian Medical Association. Dr. Bazin will address a public meeting on "Your Cancer Problem" and Dr. Newburgh on "Food in the Human System."

Government Services

Brigadier General for the Dental Corps

Leigh C. Fairbank, D.D.S., was recently appointed the first brigadier general in the dental corps of the U. S. Army, according to *Military Surgeon*. General Fairbank has been in charge of the orthodontic clinic at the General Dispensary in Washington for the past three years. He is a member of the American Association of Orthodontists and has been certified by the American Board of Orthodontia.

Training for Medical Reservists

The tenth annual Inactive Status Training Course for Medical Reservists of the Army and Navy will be held at the Mayo Foundation, Rochester, Minn., October 3-15. Presentation of carefully selected subjects in military medicine are scheduled and special work in clinics and hospitals will be offered during the morning hours for those asking special assignments. The last three days of the course will be merged with the annual meeting of the Association of Military Surgeons of the United States, October 13-15. All medical department reservists are eligible for enrolment. Approved applicants will be enrolled on recommendation of the surgeon of the Seventh Corps Area or the surgeon of the Ninth Naval District. Applications should be forwarded through the respective headquarters of the officer concerned.

Outbreak of Typhoid in Philippines

Eleven cases of typhoid were reported at Fort Mills, P. I., between December 29 and February 2 with two deaths, according to a recent review of the health of the U. S. Army. The outbreak was probably caused by a carrier, according to the report, since typhoid is prevalent in the native population and natives are customarily employed in the messes. This constitutes a hazard that is well recognized and all civilian food handlers are vaccinated. All these patients had been vaccinated and it could not be determined whether their infection was the result of massive doses of bacilli or of a degree of immunity insufficient to protect against small doses. The water supply at Fort Mills is unsatisfactory in many respects but has not been the avenue of transmission in any outbreak of intestinal disease. In the ten years 1928-1937 there were eighty-one cases of typhoid in the army, twenty-four of which were in the Philippines, eleven at Fort Mills. Of the cases at Fort Mills, three occurred in 1935, two in 1936, three in 1937, and one each in 1929, 1930 and 1934. One of the 1937 cases was included in the outbreak under discussion.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 8, 1938.

The Nostrum Evil

Notwithstanding repeated exposures the nostrum evil flourishes. In the House of Lords, Lord Horder called attention to the enormous growth in the quack medicine trade and the incongruity of exercising no control over the deleterious effects on health at a time when a serious effort is being made to improve national fitness. When he suggested dealing with this evil his friends said that he would have against him the vested interests of newspapers and their proprietors. It was becoming more obvious that the very head and front of the offense of quack medicines were the advertisements, so often grossly misleading if not actually fraudulent. It was said also that he would be charged with trying to create a monopoly for his profession and depriving the poor of a cheap cure. If there was any monopoly it lay with the trade that, at a cost of nearly as much as the total spent on hospital services, bled the public of between $125,000,000 and $150,000,000 a year. This largely unscrupulous monopoly battened chiefly on that part of the public which could least afford to feed it. If the physician thought only in terms of hard cash he would benefit by that unprincipled trade, which eventually made more patients for him.

The incongruity of the situation was obvious. On the one hand, the government had launched a campaign to improve the national physique. On the other hand, it totally failed to combat the campaign of quack medicines and foods, led by subtle and skilled generals bent on maintaining national ill health, so that they might have a ready market for their goods. For every $500 which the government spent on making people health conscious, the nostrum venders paid $5,000 to make them disease conscious. The group which purveyed medicines for nervous and digestive disorders budgeted nearly $5,000,000 for advertisements alone during the coming year. In 1931 their shares stood at $1.25; in the past three years they always stood at over $15. A few proprietary preparations were good, and the claims made for them were reasonable as claims went. A great many that did little good or little harm were sold at fantastic prices. Now and again a remedy was sold that did definite harm. There was nothing to prevent trading in some new drug which was not on the poison schedule and concerning which experience of its action alone discovered its danger. An enormous number of preparations were fraudulent in the claims they made and the way in which these claims changed with no change in the nature of the "specific." The public was slowly learning that cancer and hernia are not cured by drugs, and advertisers were quick to realize this. People had recently become anxious about the prevalence of rheumatic disease. Straightway the venders orientated their advertisements in that direction.

Advertising had become a specialized profession. The maker of the nostrum or food handed the matter over to the advertisement specialist, with a large sum of money. The product was "put across" to the public, and there was a rake-off for both, as also for the newspaper proprietor and the advertising agent. The enormous increase in recent years of the mediums —newspapers, hoardings, busses, cinemas, wireless, post boxes and airplanes—indicated the appalling effects which that mass suggestion eventually must have on the country's health and morale. The advertisements had become a greater danger than the medicines they served to sell. Fear was the chief emotion on which they played. Not only the sick but the well were swindled. The report of the government committee on patent medicines was printed twenty-four years ago. Its simple recommendations, registration, disclosure and censorship of advertisements, had never been implemented. Some papers were trying to control the evil by rejecting the grosser forms of exploitation, but the consequence was that they were penalized.

For the government Viscount Gage admitted that there was a case for controlling advertisements but stated it was difficult to guarantee that it would be effective. The attitude of the government would be dictated by public opinion. The difficulty was that the fault lay with the people who preferred to diagnose and treat their own ailments to using the immense state-aided medical schemes. This evasive reply is paralleled by an editorial in a leading paper, the *Daily Telegraph*. While admitting that Lord Horder has made out a strong case, it enlarges on the difficulty of devising a system of control "which shall be at once a perfect protection to the ignorant and credulous and yet not infringe legitimate interests." This comment ignores the fact that, as Lord Horder showed, the remedy is quite simple unless the paper regards fraudulent misrepresentation as a "legitimate interest."

Opening of Institute for Radiotherapy

Sir William Bragg, president of the Royal Society, opened the Meyerstein Institute of Radiotherapy at the Middlesex Hospital, the largest in the country for the treatment of cancer by radium and x-rays. It has been erected by Sir Edward Meyerstein at a cost of $230,000. It is a compact and complete unit in which all forms of radiotherapy are available both for the inpatients and outpatients of the hospital and for private patients. There are four floors devoted to the treatment, while sixty-four beds in four wards and six private rooms house the patients who are under the care of the physicians and surgeons of the hospital. The northern half of the building is divided into treatment cubicles, all provided with duct-suction ventilation, giving a change of filtered air twelve times to the hour. The walls contain lead to prevent stray irradiation into the corridors, and the powerful tubes on the second floor have made it necessary to put lead in the floor to prevent irradiation of the patient in the cubicle below. In every cubicle there is two way communication between patient and radiographer by microphone and loud speaker. In the teleradium room mass irradiation at 8 cm. distance is carried out with 4 Gm. of radium. The transference of radium to and from the applicator head is effected pneumatically through a flexible tube, the force being provided by a vacuum device invented by the engineers of the hospital.

Sir William Bragg said that in the use of radioactivity in medicine the gap to be crossed between science and practice was of extraordinary width and the cure of malignant growths far removed from the science of atomic action, but the need for cure was so urgent that, however empiric, the treatment must be tried. On the other hand, if any understanding of the biologic processes which go wrong and of the action of radiation on them can be gained, the chances of success will be greater.

Hospital Accommodation for Air Raid Casualties

In future wars civilians as well as soldiers will have to suffer. The last of the problems which the government is attacking in a thorough way is hospital accommodation for air raid casualties. The aim is to pool hospital accommodation over a wide area and make provision for additional beds and equipment where this is necessary. Plans are also being made for moving as many as possible of the peace time sick from the hospitals best suited to deal with casualties and for transporting the casualties themselves from raided areas to those less vulnerable. Medical and other officers have been assigned to various districts in the country in order that they may maintain close contact with the local authorities and managers of

hospitals in working out schemes which can be put into immediate operation if required. In the London area a committee of experts presided over by Sir Charles Wilson, dean of St. Mary's Hospital, has been asked to advise on the special problems of a casualty organization for the metropolis.

PARIS

(From Our Regular Correspondent)

July 30, 1938.

Protest Against Nationalization of Hospitals

In the July bulletin of the society which has charge of public relations for the physicians of Paris and its suburbs a protest is raised against a plan which was discussed at the May meeting of the French Federation of Labor. In the June 12 issue of the federation journal appears an outline of a plan according to which a national health organization termed "service for preservation of human life" is to have full control of all hospitals. There is to be a director for each of the ninety departments of France, to whom the trustees of every hospital will be responsible. The departmental director will have a number of representatives of social organizations as his aids. The secretary of the medical society of Paris and its suburbs, in his comment on this plan, states that it will give ample opportunity for politicians to secure a number of lucrative jobs for themselves and their supporters. It will also open places on the medical staffs for unscrupulous physicians who are willing to do the bidding of the newly appointed government officials who will constitute the boards of trustees of the nationalized hospitals. No doubt many men of high professional standing will continue as heads of various hospital services, but they will be considered as government officials and will have to comply with the wishes of lay directors who will be only political appointees. The professional work of high grade medical men will be judged by persons who will be incompetent to do so. As to the patients, they will lose the physician-patient relation, which has meant so much in the past, when they could be cared for in private institutions by physicians whom they had the right to choose. The general practitioner will be obliged either to enter some other profession or to accept some subordinate position in a government medical service. Of course if he accepts the latter alternative he will be obliged to work only forty hours a week, as is now the case with all officials in France. Nationalization of hospitals is being fought by the members of the medical profession here with every possible means at their disposal.

Experimental Production of Pulmonary Air Embolism

At the June 10 meeting of the Société médicale des hôpitaux of Paris the results of an experimental study of air embolism were reported by Prof. Maurice Villaret and Dr. René Vachera. They stated that formerly air embolism was of interest only as a complication of operations, but on account of the rapidly increasing number of artificial pneumothorax treatments of pulmonary tuberculosis the subject was of great interest to internists. The authors employed for the first time a technic in which the entrance of air into the cerebral vessels could be observed microscopically. They combined this method with introduction of air into the pulmonary veins. It was found, first, that in nine of ten experiments air embolism of the cerebral vessels appeared immediately after entrance of air into a pulmonary vein; second, that relatively small amounts of air, 5 cc. in some experiments and from 10 to 20 cc. in others, sufficed to produce cerebral air embolism; third, that simple puncture of a pulmonary vein as the result of a spontaneous aspiration of air was followed by a massive air embolism of the brain and death, and, fourth, that the general circulatory reactions were minimal, in the form of a slight increase of blood pressure.

The question arises whether or not the pulmonary circulation offers any resistance to the entrance of air. In eleven of thirty-two animals, or 34.3 per cent, the air passed beyond the pulmonary barrage. This passage took place slightly more often in dogs than in rabbits, whether anesthetized or not. When the air passed into the pulmonary veins its entrance could easily be verified.

Injection of air into a pulmonary vein is followed by very rapid respiration if the embolism is minimal or moderate and by apnea if a large amount of air has entered. The heart continues to beat for some time. The fall in blood pressure is very marked and immediate. Even the injection of from 30 to 50 cc. of air into a pulmonary vein is followed by a drop in blood pressure to zero. The cerebral symptoms are either dependent on those of the respiratory and cardiovascular systems or independent of them in the form of focal lesions such as hemiplegia, which may be of only a few hours' duration.

The Secretion Test of Pancreatic Function

In an article which appeared in the *Presse médicale* for March 14, 1936, attention was called by Chiray and Bolgert to a test of pancreatic function which enables the clinician to differentiate icterus due to insufficiency of the external secretion of the pancreas from icterus due to hepatic causes or to obstruction of the extrahepatic ducts. At the June 24 meeting of the Société médicale des hôpitaux, a case was reported by Dr. Jean Cathala and his associates which confirms the value of this secretion test. The patient was a boy aged 12 with a history of intense icterus of two months' duration with alternation of acholic and bile-stained stools. The pancreatic origin of the icterus was definitely shown by three negative provoked-galactosuria tests, which indicated that the liver functioned normally although it was shown by palpation and plain roentgenograms to be greatly enlarged. The secretin test revealed a marked decrease in the functional activity of the pancreas. The boy had lost a great deal of weight, but as soon as he was given dextrose by the drop method rectally, kept in bed and placed on a strict diet he began to gain weight rapidly and the stools ceased to be alternately acholic and bile stained. These clinical evidences of returning pancreatic external secretion were confirmed by repeated secretin tests revealing a normal trypsin activity. This was not true of the lipase secretion, which was much slower in returning, as shown by the secretin tests. During over four months of observation the liver gradually assumed its normal size, and only a slight subicteric hue persisted.

Program of 1938 French Medical Congress

This year's French Medical Congress will take place September 26-28 at Marseilles. It is the custom in all French national societies to select by vote at the preceding annual meeting certain subjects and to assign two or three members to make a critical analysis of the literature and, after adding their personal experience, to submit a report at the next congress. On the first day a report will be read on icterospirochetosis, on the second day one on hypochloremias, and on the third day one on the treatment of avitaminoses in adults. American physicians who desire further information are asked to write to Prof. Henri Roger, 66 boulevard Notre Dame, Marseilles.

A congress on renal insufficiency will be held September 22 at the health resort Evian on the French side of Lake Geneva.

International Congress of Examiners for Insurance Companies

The International Congress of Examiners for Insurance Companies will be held May 18-20, 1939, at Paris. The honorary presidents are Dr. P. Hornig of Berlin and Sir Walter Langdon-Brown of London. The president is Prof. M. Loeper of Paris. Papers will be read on the influence of pulmonary

tuberculosis, hyperthyroidism, obesity, tobacco and albuminuria on life expectancy. A series of papers will also be read on the value of vital statistics in life insurance. Dr. Wireman Cook of Minneapolis will take part in the last-named symposium. Inquiries regarding the congress can be sent to Dr. P. A. Carrier, 8 rue de Belloy, Paris, 16e.

BERLIN

(From Our Regular Correspondent)

July 7, 1938.

The Campaign Against Epidemic Poliomyelitis

Dr. Ernst Meier of the National Health Bureau has had published a report on epidemic poliomyelitis in the German reich. The morbidity of the disease in Germany has always remained within moderate bounds. This circumstance is explicable on various grounds: widespread immunity granted by unrecognized infections, high incidence of abortive forms, and so on. The tendency of the statistical figures for poliomyelitis to remain rather low is based on the following circumstance: Since the disease in epidemic form usually is confined to a geographically circumscribed area, the morbidity for a very large area such as Germany tends to remain moderate, in contrast to the frequently high local rates; in smaller countries, on the other hand, epidemics of the same magnitude can send the national morbidity soaring. Besides, in certain parts of the world, in Sweden, for example, and in northern sections of the United States, a special and inexplicable danger from poliomyelitis is present. Recently a high incidence of the disease has been manifested in Germany. The two years which witnessed the most serious outbreaks of poliomyelitis since the war were 1927, with 2,840 cases, and 1932, with 3,869 cases. After a notable recession in 1933, the number of cases has again risen, as the accompanying table shows. The figures do not necessarily signify a permanent tendency to increase; during the five years following the 1927 epidemic a similar upward trend was observable.

The morbidity of epidemic poliomyelitis for the German reich in 1937 was 4 per hundred thousand of population; the highest national morbidity recorded in recent years was 6, in 1932. Still greater are the differences in morbidity as between

Epidemic Poliomyelitis in Germany

Year	Cases
1933	1,251
1934	1,699
1935	2,080
1936	2,256
1937	2,723

various countries. For example, in 1936 the morbidity per hundred thousand of population was 1.4 for England and Wales, 3.4 for the German reich and 49 for Sweden. How significant the geographic delimitation of epidemics may be for such figures is exemplified by the fact that whereas in upper Bavaria in 1937 the morbidity was 41.3 (still per hundred thousand of population), that of the entire reich in the same year was, as mentioned, only 4. These local variations, as numerous examples attest, play an important part in the statistics of poliomyelitis, and if the statistics are incomplete false conclusions are easily arrived at.

An exact analysis shows that in 1936 a certain displacement in the morbidity took place in the direction of the higher age group and that this trend continued during 1937. In Berlin and Munich more cases were reported among older female groups than among older male groups.

The inauguration of special measures on the part of the federal health authorities is justified by the severe sequels of poliomyelitis, although the disease in its most severe form is not frequent. Observations made in Germany in recent years permit one to estimate roughly that, of one million children born in a certain year, 2,000 are effected with poliomyelitis in the course of their youth. Of these, 600 recover completely, 1,200 remain crippled and 200 die of the disease. Hopes for successful therapy of poliomyelitis have in recent years been centered in convalescent serum, which was first extensively administered in Germany in 1932 and which subsequently has come to be generally utilized. Although successful results were not always observed after use of this serum, this therapeutic method enjoys a high reputation in Germany. On the one hand, favorable-sounding results are reported but, on the other hand, there is no truly successful therapeutic method. The distribution of serum necessitated the formation of a special type of organization, which has now been functioning efficiently for several years. On account of the surprisingly high

Convalescent Blood Received at Behring Laboratories

Year	Liters of Blood
1934	70
1935	150
1936	90
1937	166

local incidence of the disease, central assembly of the serum has been found expedient. Nationwide distribution is centered in the National Health Bureau, which sedulously observes the course of an epidemic (by following current medical reports) and plans the necessary measures to be taken. The available supplies of serum are always carefully regulated. In general the abstraction of blood takes place from May forward; namely, a short while before the period of seasonal epidemics. All organizational difficulties have been solved, and the cooperation of health officials everywhere is assured. A special campaign of propaganda to augment the ranks of suitable blood donors has been initiated. In all Germany only two establishments engage in preparation of the serum: the Behring Laboratories, Marburg, supply the entire reich excepting Saxony, and Saxon Serologic Laboratories, Dresden, supply that province. The quantities of convalescent blood received at the Behring Laboratories in recent years are listed in the accompanying table. The figures for 1935 and 1937 are higher, as concerted campaigns for the assembly of convalescent blood took place in each of those years. Furthermore, a special method of prompt reporting has been instituted in order that foci of infection may be isolated.

Of further interest is the author's investigation of the time required for recognition of poliomyelitis. A study of 600 cases disclosed that the elapsed time between the onset of the illness and the beginning of treatment was more than one week in 14.3 per cent, that treatment was begun on the very day the patient became ill in only 17.7 per cent and that about half (50.9 per cent) of the patients first received medical attention within two days after the onset of illness. For the prognostic evaluation of convalescent serum it is important to realize that in about half the cases the physician did not see the patient before the fourth day of illness. A factor that makes for this delay, in addition to difficulties of transportation in certain regions, is the vagueness of the initial symptoms, which often causes the parents of a stricken child to put off seeking the physician. Throughout the German reich cases of epidemic poliomyelitis must be reported to the health authorities by the attending physician. In 14.6 per cent of the 600 cases the report was made on the first day of treatment; in 13.8 per cent it was not made for more than a week after treatment was begun, and in the vast majority of cases (52.7 per cent) it was made on the second day of treatment. The late reports may be considered as due chiefly to the main difficulties of diagnosis. During epidemics cases tend to be reported at an earlier stage, as is readily understandable.

Prof. Hermann Straub Is Dead

Prof. Hermann Straub, Göttingen ordinarius of internal medicine, died suddenly at the age of 55 while on a professional journey. Straub was a pupil principally of Professor von Romberg; in addition he received excellent training in physiology and pharmacology at Freiburg, Cambridge and London. After serving for many years as senior physician of the First Medical Clinic, Munich, he was called to Halle, at the age of 36. Subsequently he served at Greifswald and for the past decade had been at Göttingen. Straub was one of the foremost authorities on diseases of the circulation, a field to which his minutely elaborated clinical and experimental work contributed much. Among his publications may be mentioned those on the determination of blood pressure, on examinations of the dynamics of pulsation, on velocity of the blood current and cardiac beat volume, and on determination of pressure in the different cavities of the heart. His factual exactitude earned him a great reputation.

BUCHAREST

(From Our Regular Correspondent)

June 25, 1938.

Syphilis in Rumania

Dr. G. Banu, formerly minister of health in Rumania, made extensive investigations of syphilis in Rumania. In the province of Transylvania syphilis has a long history. Krauss found syphilitic patients in Brasov in 1500. About the end of the eighteenth century there were epidemics of syphilis. The frequent wars during the rule of the Hapsburgs and the movements of troops were responsible for the general high incidence of syphilis in the Banat. It is recorded that at the end of the eighteenth century Maria Theresa removed all prostitutes from Vienna and settled them in the environment of Timisoara, in places where the majority of the population were Rumanians. By this measure syphilis was spread to such an extent that hospitals had to be erected for the treatment of this one disease in Comoraste village, Lugoj, Faget and Caransebes.

The first records of syphilis in the Rumanian principalities go back to the seventeenth century, when prostitution was extensive in Bucharest. As contact was made with the neighboring states, syphilis spread, chiefly imported by the rich landowners who used to go abroad. At the commencement of the nineteenth century a new focus of infection was formed by the Russian army. In 1835 syphilis claimed many lives in Bucharest, Arges and Teleormana. The administrative board of Muntenia passed the following resolution Aug. 21, 1843: "Since venereal disease has come to our country, all public women should be secretly conscribed, and at a certain place on a certain day in a certain hour they shall be collected and examined; those found sick are to be sent to the hospital." In 1844 the Coltea and Pantelimon hospitals had 227 women patients suffering from venereal diseases. In Moldavia systematic control of the prostitutes was introduced in 1844. They were registered by the police and given a booklet in which weekly medical examinations were recorded, and those found sick were sent to the hospital. In Bucharest a similar regulation was introduced in 1862. Legislation dealt with the problem of syphilis in 1874, 1886 and 1898.

Of conditions prevailing about the end of the past century Professor Felix writes: "In the last decades of the nineteenth century the lowered morals, the increase in the number of bachelors, the ever growing luxury, the introduction of compulsory military service and the excessive formalities demanded by notary publics with a decrease in the number of marriages all promoted the spread of venereal diseases." In 1898 and 1890 the total number of syphilitic patients treated in all hospitals of the country was about 10,000 yearly, while in the outpatient departments of hospitals the attendance amounted to 28,000. According to the data supplied by Bordea there were 9,563 syphilitic persons in 1901, 9,595 in 1905 and 11,651 in 1915. The number increased from 1918 on, which can be attributed chiefly to the enlargement of the country's territory by the addition of Transylvania, Bessarabia and the Banat. There were 14,067 patients on record in 1918, 22,485 in 1919 and 30,509 in 1920. The increasing number is due not so much to the spread of the disease as to intense activity in the finding of cases. These figures do not include all syphilitic persons in the country, for many patients seek relief from private physicians. As to the capital city itself, 2,605 patients were attended in Bucharest in 1910, 3,530 in 1915, 3,632 in 1918 and 2,738 in 1920. These figures also do not show the true conditions. For instance, in the Eufforia Hospital, where free outpatient service is given, in one year there was a turnover of 13,942 patients with venereal disease, and among these were many with syphilis.

Conditions in Transylvania are reflected by the statistics compiled by the antivenereal disease dispensaries, according to which 1,307 syphilitic patients received treatment in 1919 and 2,111 in 1920. In Transylvanian hospitals 6,188 syphilitic patients were under medical care in 1919 and 8,818 in 1920.

The World War was a large factor in the spread of syphilis. In both territories of Rumania, that which was occupied by the enemy and Moldavia, which was overrun by the Russians, the number of persons with syphilis increased. The spread of syphilis was promoted much more by the Russian than by the Austro-Hungarian or the German army.

A report states that in 1928 there were 146,707 persons with syphilis, of whom 89,691 were subjected to treatment; that is, 61 per cent. The number of doses of neoarsphenamine used that year in free dispensaries was 651,982. The morbidity per hundred thousand of population was 843.5. The percentages of the forms of syphilis were as follows: primary 10.7, secondary 34.4, tertiary 13.3, latent 29.6, parasyphilis 2.9 and heredosyphilis 9.1 per cent. The mortality rate per thousand patients was 9. It is distressing that according to these statistics a great number of patients receive no treatment.

With reference to the sexes, the infected males represented 47.2 per cent and the women 52.8 per cent. The most infected province is the old kingdom, the rate being 1,097 per hundred thousand of population; then follow Bucovina, Bessarabia and Transylvania. This state of affairs in the old kingdom is due to cultural, social and political conditions and invasion during the war. In Bucovina the reported number of syphilitic persons is higher than in Bessarabia, because in Bucovina the case-finding campaign was carried on with much greater energy.

It is causing great anxiety that 10.7 of 100 syphilitic persons suffer from primary and 34.4 from secondary syphilis, as almost half of the syphilitic population is in the infectious stage. The social peril in this situation worries the leaders of public health, who will endeavor to stop the spread of infection by strict control, compulsory notification, forced treatment and lectures to the public.

The Care of Mothers and Children

The ministry of health intends to erect a school of midwifery in every great urban center to make possible the ideal that every village shall have its own midwife. In the schools of midwifery pupils will be admitted only from the surrounding country and after studying for one year they will be given the right to practice midwifery, but only in villages. The midwife will not get a fixed salary from the village but will be paid by the state according to how many births she attends. In this way it will be to her interest that the number of births in the village shall be as many as possible and so she will refuse to help gravid women get rid of their burden.

Experience in the field of child welfare has shown that the high infant mortality in the rural districts is attributable first to lack of knowledge necessary to the nursing of children under 1 year of age. The ministry of health contemplates

establishing many more village dispensaries, provided with matrons, whose chief duty will be the elimination of some bad customs existing in some villages and the changing of the nursing and care of infants in the right direction.

ITALY

(From Our Regular Correspondent)

June 30, 1938.

Meeting of Urologists

When the Società di Urologia recently met at Naples, Professor Cacchi of Padua reported studies performed on thirty-three strains of tubercle bacilli which were isolated from the urine in cases of human renal tuberculosis. The identification was made by the cultural properties of the several strains on elective culture mediums, such as Petragnani's, with 3 per cent glycerin. The biologic test was also made. In three of the thirty-three cases the isolated strain presented the characteristics of the bovine type. The speaker discussed the symptoms and the evolution of the condition in these three cases, all of which were grave and two of which were rapidly fatal.

Dr. Bravetta of Milan called attention to the canalization of urinary calculi which are situated along the secretory route of the kidney. Dr. Di Maio of Milan, who from 1932 has studied the pathologic conditions which develop in workers who handle amines, reported his observations in 1937. There was a case of malignant tumor of the bladder, one of primary benign papilloma, two recurrences of benign multiple papilloma and fifteen cases of precancerous congestion.

Dr. Garofalo of Bologna spoke on a sign of cancer of the prostate. In the last two years he has observed nineteen cases of neoplasm of the prostate in patients ranging in age from 50 to 80 years. The diagnosis was confirmed in seven cases by microscopic study and in the other twelve by the clinical evolution of the condition. In 50 per cent of the cases the deferent canals were uniformly dilated to the caliber of a No. 15 Charrière sound. The other parts of the structure were normal. The sign of the deferent canal is frequent in young patients suffering from solid carcinoma of the prostate. It does not show when the condition is adenocarcinoma or the patient is over 70. According to Dr. Garofalo the changes of the deferent canal are due to hypertrophy of the muscular layers of the canal from effort during passage of the spermatic current through the ejaculatory ducts which are compressed by the tumor. The sign is of clinical importance.

Dr. Pellecchia stated that the development of adenoma depends on the presence of organic and humoral modifications related to the age of the patient. The endocrine theory is not enough to explain the formation of adenoma. The speaker said that endocrine hyperfunction from old age and the diminution of sexual functions may be the factor for the production of adenoma. He reported satisfactory results from the administration of sex endocrine products. In cases of acute retention of urine the glandular treatment induced voluntary micturition. In all cases the treatment is harmless. Dr. Oberholtzer reported his results from a treatment with synthetic testis hormones or with testicular extracts in a group of fifty patients suffering from prostatism. The subjective symptoms improved in all cases. In cases of chronic retention of the urine, reduction or complete disappearance of the residue took place. In several cases of complete retention the treatment induced voluntary micturition. The speaker said that the treatment with testis hormones has to be administered as soon as the disorders of micturition appear.

International Congress of Criminology

The first International Congress of the Society of Criminology will meet at Rome late in September. The following topics of discussion appear on the agenda: Etiology and Diagnosis of Juvenile Criminality: Data on Certain Legal Procedures; Personality Study of the Delinquent; Role of the Judge in the Anticrime Campaign: His Criminologic Training; Organization for Prevention of Crime in Various Countries; Ethnology and Criminology; Practical Application of Public Safety Measures in Various Countries.

Obligatory Insurance Against Tuberculosis

The Council of Ministers recently passed a law by which insurance against tuberculosis is obligatory to all school teachers and didactic directors who make a monthly salary of more than 800 lire ($40). Sons, brothers and sisters under the age of 21 who are supported by the insured person will receive the benefits of the insurance. The money necessary for expenses will be collected by means of an annual tax of 36 lire for each insured person.

Professor Di Vestea is Dead

Prof. Alfonso Di Vestea, who for thirty-eight years occupied the chair of hygiene at the University of Pisa, died at Rome. Among the best known and most important of his accomplishments were his studies of the virus of rabies and its filtrability, the climatotherapy of tuberculosis, the methods of microscopic examination of different types of flour and, in addition, much experimental work in the most diversified fields of hygiene and of microbiology. Di Vestea founded the first antirabies institute in Italy, at the medical clinic of Naples. He was author of a manual of school hygiene that has become classic. He was also a propagandist of child welfare, particularly with regard to the organization of open air colonies for children in the mountains and at the seashore.

Marriages

WENDELL HOLMES COOK, Philadelphia, Miss., to Miss Jane Elizabeth Peneguey in New Orleans, June 26.

JAMES NEWBURN BURCH, Shelbyville, Tenn., to Miss Sara McQuiddy Cortner at Bell Buckle, May 28.

HARRY CARRINGTON FLEMING, New York, to Miss Evelyn Brooks in Charlottesville, Va., July 2.

LUCILLE MARY BOND, Toronto, Ont., Canada, to Mr. Albert Henry Kraft of New York, June 27.

LESLIE HOMER BACKUS, Gloversville, N. Y., to Miss Helen Torrey Grant in Northville, July 2.

LOUIS PHILIP BAILEY, Nathalie, Va., to Miss Telia Barner Barksdale in Sutherlin, June 18.

JOHN BARTON BURRETT, New York, to Miss Clara Theodora Bray of Orlando, Fla., July 2.

KENNETH H. BROWN, Indianapolis, to Miss Rosamond Hoagland of Decatur, Ill., July 1.

VERNON DUANE THYSELL, Hawley, Minn., to Miss Nanette Abt of Minneapolis in June.

BRADFORD CANNON, St. Louis, to Miss Ellen DeNormandie of Lincoln, Mass., recently.

WILLIAM J. BAILEY to Mrs. Lucille H. Durden, both of Fort Lauderdale, Fla., June 16.

JOHN WILLIAM BALLOU, Rushville, Ill., to Miss Marijane Corya in Denver, July 9.

ALBERT HENRY ANDREWS JR., Chicago, to Miss Jane Olson of Oak Park, Ill., June 25.

CHARLES M. CLENDENEN to Miss Helen Boucher, both of Damascus, Va., in June.

ALMON R. CROSS, Durham, N. C., to Miss Doris Ellen Brown of Goldsboro, June 5.

MARK P. VIRNIG, Wells, Minn., to Miss Genevieve Kelly of Minneapolis, June 20.

JOHN CANNON, New York, to Miss Jean Carter of Huntington, N. Y., June 25.

EARL WILLIAM ELLIS, Elgin, Minn., to Miss Marvel Magner of Shafer, recently.

WILLARD MANVILLE AKINS, Eveleth, Minn., to Miss Lila Koivisto, recently.

CLIFFORD HERBERT BRUSH to Miss Mary Moffitt, both of Chicago, June 25.

Deaths

Frederick Peterson ⊕ Bridgewater, Conn.; University of Buffalo School of Medicine, 1880; chairman of the Section on Neurology and Medical Jurisprudence, American Medical Association, 1898-1899; professor of pathology at his alma mater, 1882-1884; professor of nervous and mental diseases, University of Vermont, 1888-1889; professor of psychiatry, Columbia University College of Physicians and Surgeons, 1903-1915; member and past president of the American Neurological Association; member of the American Psychiatric Association, Association for Research in Nervous and Mental Diseases and the American Psychopathological Association; president of the New York State Commission in Lunacy, 1901-1904, and the New York Neurological Society, 1899-1901; since 1894 member of the board of managers, Craig Colony, Sonyea, N. Y., and at one time president; at various times alienist to Bellevue Hospital, and to the Manhattan, Flatbush, and Central Islip State hospitals; co-editor of a two volume work, "Legal Medicine and Toxicology" and "Atlas of Legal Medicine," translated from the German; co-author of nine editions of "Nervous and Mental Diseases"; contributed numerous articles to various magazines; received honorary degrees from University of Niagara in 1888 and the University of Pennsylvania in 1919; aged 79; died, July 9, in New York of diabetes mellitus.

Homer **Gage** ⊕ Worcester, Mass.; Harvard University Medical School, Boston, 1887; member of the American Surgical Association; past president of the New England Surgical Society; fellow of the American College of Surgeons; served during the World War; for many years medical director of the State Mutual Life Assurance Company; past president of the Association of Life Insurance Medical Directors of America; member of the board of overseers, Harvard University, 1921-1927, 1928-1934; trustee, Worcester Polytechnic Institute, 1907-1938, and treasurer, 1908-1938; on the consulting staff of the Worcester City Hospital; on the consulting medical board of the Memorial Hospital and president of the board of trustees; aged 76; died, July 3, of coronary thrombosis.

John Bromham Hawes II ⊕ Boston; Harvard University Medical School, Boston, 1903; president of the Boston Tuberculosis Association; member of the American Clinical and Climatological Association; formerly assistant visiting physician and director of the clinic for pulmonary diseases, Massachusetts General Hospital; director of the Rutland (Mass.) Cottage Sanatoria; consultant, diseases of the lungs, U. S. Veterans' Bureau; co-author, with Dr. M. J. Stone, of "Diagnosis and Treatment of Pulmonary Tuberculosis"; author of "Early Pulmonary Tuberculosis," "Tuberculosis and the Community," and others, and of numerous monographs on pulmonary diseases; aged 61; died, July 20, of coronary occlusion.

Henry Valentine Broeser ⊕ Hoboken, N. J.; New York Homeopathic Medical College, 1900; member of the Radiological Society of North America; member of the county board of health; served during the World War; on the staffs of St. Mary's Hospital, Hoboken, St. Francis Hospital, Jersey City, and the North Hudson Hospital, Weehawken; aged 69; died, June 29, of arteriosclerosis and acute cardiac dilatation.

Samuel Frank Abrams ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1917; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; aged 46; visiting gynecologist to St. Louis City Hospital and associate gynecologist and obstetrician to the Jewish Hospital, where he died, June 26, of thrombosis.

George Bertram Booth, Los Angeles; Toledo Medical College, 1907; member of the Ohio State Medical Association; fellow of the American College of Surgeons; served during the World War; formerly surgeon to the Mercy Hospital and on the advisory staff of the Lucas County Hospital, Toledo; aged 57; died, June 8, in the Veterans Administration Facility, West Los Angeles.

Leon Emile Duval, Ionia, Mich.; University of Vermont College of Medicine, Burlington, 1915; member of the Michigan State Medical Society and the American Psychiatric Association; assistant superintendent of the Ionia State Hospital; aged 46; died, June 17, of burns received when he poured gasoline over his automobile and clothing and set them on fire.

Victor Dryden Holloway ⊕ Knoxville, Tenn.; University of Pennsylvania Department of Medicine, Philadelphia, 1907; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; surgeon to Fort Sanders and St. Mary's Memorial hospitals; gynecologist to the Knoxville General Hospital; aged 53; died, June 24, of leukemia.

Samuel Griggs Jett, Reidsville, N. C.; University of the South Medical Department, Sewanee, Tenn., 1903; member of the Medical Society of the State of North Carolina; health officer; formerly county coroner; member of the local school board; aged 57; died, June 11, in the Memorial Hospital, Danville, Va., of coronary thrombosis.

Levi S. Walton, Jenkintown, Pa.; Jefferson Medical College of Philadelphia, 1885; member of the Medical Society of the State of Pennsylvania; past president of the Bucks County Medical Society; formerly a member of the U. S. Board of Pension Examiners; aged 75; died, June 8, of coronary thrombosis.

Susan Jones, Racine, Wis.; Rush Medical College, Chicago, 1903; member of the State Medical Society of Wisconsin; past president and secretary of the Racine County Medical Society; aged 75; died, June 17, in St. Mary's Hospital, of coronary thrombosis, diabetes mellitus and arteriosclerosis.

Samuel Chester Eveleth ⊕ Marblehead, Mass.; Harvard University Medical School, Boston, 1908; chairman of the school board; on the staff of the Mary A. Alley Emergency Hospital; aged 55; died, June 13, of coronary thrombosis, cerebral hemorrhage, pneumonia and empyema.

Waheeb Salem Zarick, Indianapolis; Indiana University School of Medicine, Indianapolis, 1927; member of the Indiana State Medical Association; assistant professor of anatomy, Indiana University School of Dentistry; public schools physician; aged 46; died, June 28.

Matt S. Dibrell, Van Buren, Ark.; Arkansas Industrial University Medical Department, Little Rock, 1889; member of the Arkansas Medical Society; past president of the Crawford County Medical Society; aged 71; died, June 1, of hypertension and heart disease.

Myron Joseph Fox, Waterbury, Conn.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1928; member of the Connecticut State Medical Society; aged 38; died, June 28, in the Massachusetts General Hospital, Boston, of heart disease.

Edward Everett Green ⊕ New York; Long Island College Hospital, Brooklyn, 1906; served during the World War; on the staff of the Swedish Hospital; aged 69; died, June 30, in the Brooklyn Hospital of arteriosclerosis and coronary occlusion.

John William Pinkert, Louisville, Ky.; Southwestern Homeopathic Medical College and Hospital, Louisville, 1896; formerly associate professor of anatomy at his alma mater; aged 73; died, May 3, of carcinoma of the stomach and liver.

Harry William Vickers ⊕ Little Falls, N. Y.; Cornell University Medical College, New York, 1903; served during the World War; on the staff of the Little Falls Hospital; aged 61; died, June 11, of carcinoma of the kidney with metastasis.

Frank Fred Hoffmann ⊕ Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1901; on the staffs of the Illinois Masonic Hospital and the Norwegian-American Hospital; aged 59; died, June 22, of coronary occlusion.

Kenneth Beymer Turner, Los Angeles; Columbian University Medical Department, Washington, D. C., 1902; aged 62; died, May 27, in the Veterans Administration Facility of cirrhosis of the liver and arteriosclerotic heart disease.

Walter Duke Ellis, Plano, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; member of the State Medical Association of Texas; aged 69; died, June 14, in the Baylor Hospital, Dallas, of cirrhosis of the liver.

Albert Field Groves, Daytona Beach, Fla.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1879; aged 84; died, June 22, in the Halifax District Hospital of myocarditis and nephritis.

Mack Henry Tabor, Crumpler, W. Va.; University College of Medicine, Richmond, 1910; member of the West Virginia State Medical Association; formerly member of the state legislature; aged 52; died, May 16.

Paul Roy Jones, Mobile, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1898; aged 61; died, June 14, at his home in Whistler of cirrhosis of the liver, chronic myocarditis and chronic sinusitis.

Henry W. Schrock, Lagrange, Ind.; Cincinnati College of Medicine and Surgery, 1881; member of the Indiana State Medical Association; aged 83; died, June 3, of influenza, pneumonia and heart disease.

Ida Johanna Heiberger, Washington, D. C.; Woman's Medical College of Pennsylvania, Philadelphia, 1885; aged 80; died, June 15, in St. Elizabeth's Hospital of acute left hemiplegia and arteriosclerosis.

Charles Ray Dever, Hastings, Neb.; Ensworth Medical College, St. Joseph, Mo., 1911; member of the Nebraska State Medical Association; aged 57; died, May 25, in St. Joseph, Mo., of carcinoma of the prostate.

Ryan Alfred Gyles, Blackville, S. C.; University of Maryland School of Medicine, Baltimore, 1891; formerly mayor; at one time member of the state legislature; aged 67; died, June 26, of coronary occlusion.

Henry Harbaugh Rhodes ⊕ Middletown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1902; member of the board of health; aged 63; died, May 24, of arteriosclerosis and cerebral hemorrhage.

Frank Scofield Skemp, Talihina, Okla.; Minneapolis College of Physicians and Surgeons, 1909; member of the Oklahoma State Medical Association; aged 54; died, June 6, in Denver, of myocarditis.

Fletcher J. Wright ⊕ Petersburg, Va.; University College of Medicine, Richmond, 1899; member of the state board of medical examiners; on the staff of the Petersburg Hospital; aged 65; died, May 8.

Edward William Tisdale, Los Angeles; University of Louisville (Ky.) Medical Department, 1893; member of the State Medical Association of Texas; aged 75; died, May 14, of chronic myocarditis.

Arthur A. Hobbs, Kansas City, Mo.; Kansas City Medical College, 1896; member of the Missouri State Medical Association; served during the World War; aged 70; died, June 7, in St. Joseph Hospital.

John Caldwell Decker, Portola, Calif.; Cooper Medical College, San Francisco, 1904; formerly county health officer; served during the World War; aged 61; died, May 13, of coronary occlusion.

William Edward O'Connor, Omaha; Creighton University School of Medicine, Omaha, 1936; aged 27; resident at Henry Ford Hospital, Detroit, where he died, June 7, of a self-inflicted bullet wound.

Charles Morlan Hole ⊕ Cleveland Heights, Ohio; Western Reserve University Medical Department, Cleveland, 1898; aged 69; died, June 16, in a hospital at Cleveland of arteriosclerotic heart disease.

Frank Amasa Hodgdon, Malden, Mass.; Hahnemann Medical College and Hospital, Chicago, 1886; aged 81; died, June 18, of complications resulting from a broken leg suffered in a fall.

Henry Lewis Hille, Collinsville, Okla.; Hospital College of Medicine, Louisville, Ky., 1904; president of the school board and formerly mayor; aged 57; died, May 31, of heart disease.

George Franklin Stack, Superior, Wis.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1896; aged 68; died, June 2, of arteriosclerosis and heart disease.

Edward Clinton Davis, Milwaukee; Bennett College of Eclectic Medicine and Surgery, Chicago, 1914; aged 48; died, June 16, of coronary sclerosis and carcinoma of the rectum.

Theodore Young Hull ⊕ San Antonio, Texas; Columbian University Medical Department, Washington, D. C., 1892; aged 77; died, June 30, of hemorrhage into the pons-oblongata.

Flora Pollack, Baltimore; Woman's Medical College of Baltimore, 1891; member of the Medical and Chirurgical Faculty of Maryland; aged 72; died, May 27, of mitral stenosis.

Gardiner Spring Jr., Salisbury, Md.; Medical College of Virginia, Richmond, 1913; aged 47; died, June 28, in the Johns Hopkins Hospital, Baltimore, of tuberculosis of the lungs.

Peter Charles Schenkelberger ⊕ Chicago; Hahnemann Medical College and Hospital, Chicago, 1903; aged 59; was killed, June 26, when he fell from a nine story window.

Eugene J. Bittman, Los Angeles; Washington University School of Medicine, St. Louis, 1897; aged 64; died, May 21, in the California Hospital of acute coronary thrombosis.

Frank Edward Mahoney, New Stanton, Pa.; University of Pittsburgh School of Medicine, 1932; aged 30; died, May 10, in the University Hospital, Philadelphia, of leukemia.

Marshall Dayton Hamner, Hannibal, Mo.; University of the City of New York Medical Department, 1877; aged 82; died, June 8, in the Levering Hospital of prostatitis.

John B. Booz, Pittsburgh; University of Pittsburgh School of Medicine, 1908; member of the Medical Society of the State of Pennsylvania; aged 57; was drowned, June 1.

Charles C. Van Valkenburgh, Fresno, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1878; aged 88; died, May 12, of arteriosclerosis.

Wilfred Everett Bixby, Sebastopol, Calif.; University of California Medical Department, San Francisco, 1907; aged 55; died, June 29, of a self-inflicted bullet wound.

Joseph Peters Hershberger, Lancaster, Ohio; Hahnemann Medical College of Philadelphia, 1881; aged 82; died, June 11, of cerebral hemorrhage and arteriosclerosis.

Charles Morris Simpson, Cleveland; Beaumont Hospital Medical College, St. Louis, 1890; aged 78; died, June 7, in the Fairview Hospital of coronary thrombosis.

Frederick Barber Meek, Oklahoma City; Western University Faculty of Medicine, London, Ont., Canada, 1901; aged 65; died, June 22, of coronary thrombosis.

John Joseph Wenzke, Celina, Ohio; Ohio State University College of Medicine, Columbus, 1929; aged 35; died, May 31, in Howard, Pa., of pulmonary tuberculosis.

Joab Langston Thomas, Bessemer, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1921; aged 45; died suddenly, June 8, of angina pectoris.

Kenneth W. Sneed ⊕ Wortham, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1892; aged 68; died, June 26, of cerebral hemorrhage.

Sumner Bradbury Marshall, Alfred, Maine; Medical School of Maine, Portland, 1898; aged 67; died, June 1, in a hospital at Sanford, of pneumonia.

Samuel Smith, Boston; St. Louis College of Physicians and Surgeons, 1924; member of the Massachusetts Medical Society; aged 45; hanged himself, June 20.

Carl Walmer Moffitt, Rockland, Maine; Hahnemann Medical College and Hospital of Philadelphia, 1894; aged 69; died, May 25, of chronic myocarditis.

Charles Card Selden, Oberlin, Ohio; Long Island College Hospital, Brooklyn, 1895; aged 77; died, June 15, of arteriosclerosis and coronary thrombosis.

Greenbery Kates Talley, Tyler, Texas; Louisville (Ky.) Medical College, 1890; Missouri Medical College, St. Louis, 1894; aged 79; died, April 19.

Andrew Jefferson Hoover, Wynne Wood, Okla.; Jefferson Medical College of Philadelphia, 1887; aged 77; died, June 22, of cerebral hemorrhage.

James William Aitchison, Madrid, N. Y.; New York University Medical College, 1896; for many years health officer; aged 75; died, May 11.

William Edmond Anderson, Lake Alma, Sask., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1910; aged 67; died, May 13.

James Harlan Wells, Shell Rock, Iowa; State University of Iowa College of Medicine, Iowa City, 1902; aged 80; died, May 27, of atheroma.

Sarah Hughes Graves Cornell, San Francisco; Cooper Medical College, San Francisco, 1892; aged 75; died, May 13, of coronary sclerosis.

James R. Autrey, Columbus, Ark.; Louisville (Ky.) Medical College, 1889; member of the Arkansas Medical Society; aged 79; died, June 17.

George Elbert Hall, Alamo, Calif.; California Eclectic Medical College, Los Angeles, 1898; aged 65; died, May 3, of diabetes mellitus.

Asa Vernon Snow, Cushman, Mass.; Bellevue Hospital Medical College, New York, 1879; aged 80; died, June 8, of heart disease.

Alton Jeffries, Detroit; Michigan College of Medicine and Surgery, Detroit, 1891; aged 80; died, June 18, of coronary thrombosis.

Cassius M. Craig, Champaign, Ill.; Medical College of Ohio, Cincinnati, 1882; aged 81; died, June 25, of bronchopneumonia.

Thomas Sylvester Kirby, Cartier, Ont., Canada; University of Toronto Faculty of Medicine, 1910; aged 53; died, May 3.

Robert Edward Ellzey, Cotton Valley, La.; Memphis (Tenn.) Hospital Medical College, 1913; aged 56; died, June 12.

Archibald Le Roy Rice, Los Angeles; Denver College of Medicine, 1902; aged 65; died in May of cerebral embolus.

Archibald C. Byars, Oakland, Calif.; Tennessee Medical College, Knoxville, Tenn., 1902; aged 68; died, May 17.

Caleb P. Soper, Cedar Falls, Iowa; Dartmouth Medical School, Hanover, N. H., 1883; aged 76; died, May 21.

Philip E. Hannah, Harrodsburg, Ky.; Southern Medical College, Atlanta, Ga., 1886; aged 74; died, May 14.

William Bell Meredith, Pearsall, Texas; Medical College of Alabama, Mobile, 1874; aged 87; died in May.

Correspondence

DOCTORS ON COINS

To the Editor:—I am much interested in your comment on the article from the *Centaur of Alpha Kappa Kappa* (THE JOURNAL, August 6, p. 536) on the portraits of medical men on postage stamps. So far as I know the numismatists have not fared as well as the philatelists. I have an Austrian two shilling piece struck in 1929 bearing the profile of Theodor Billroth. I know of no other coin bearing the portrait of a physician and would be glad to hear from interested physicians if other such coins have been issued by any country.

EDGAR F. KISER, M.D., Indianapolis.

"CONCENTRATION OF CHLORIDE, SODIUM AND POTASSIUM IN URINE AND BLOOD"

To the Editor:—My attention is called to two errors in the bibliography of the paper entitled "Concentrations of Chloride, Sodium and Potassium in Urine and Blood: Their Diagnostic Significance in Adrenal Insufficiency" by Cutler, Power and myself in THE JOURNAL, July 9. The reference to Gordon, Sevringhaus and Stark should be Gordon, E. S.; Kimble M. S., and Sevringhaus, E. L.: Potassium Tolerance Tests in the Study of Asthenias, p. 31, Program of Central Society for Clinical Research, Chicago, November 1937. The reference to Zwemer and Truszkowski should be *Proc. Soc. Exper. Biol. & Med.* **35**:424-426 (Dec.) 1936.

RUSSELL M. WILDER, M.D., Rochester, Minn.

AIR CONDITIONING AND INDUSTRIAL HEALTH

To the Editor:—In the June 25 issue of THE JOURNAL, page 2142, Dr. Leverett D. Bristol has reported his observations under the heading of "Air Conditioning and Industrial Health." From his experience he states that "there is no evidence to indicate any improvement in incidence or duration of sickness among a group of about 1,000 people working in scientifically controlled air conditioned space as compared with a control group of approximately the same size working in non-air conditioned quarters ventilated by the usual mechanical and natural methods."

In commenting on these findings he says: "The somewhat negative results in this comparative study may be based not so much on the lack of influence of air conditioning on absence because of sickness as on the satisfactory quality of the ventilation in this particular instance available to the control, non-air conditioned group."

This is a pertinent observation, but I believe that he has overlooked another factor, and that is the fact that the workers at most were in the air conditioned environment from seven to eight hours a day probably five days out of the week. The remainder of their time undoubtedly was spent in surroundings much less desirable or healthful. For this reason I do not see how one could expect that their exposure to an air conditioned environment for forty hours a week would result in a general improvement of their health. If these people went home to an air conditioned house or apartment, one could then expect that they would be in an air conditioned environment about two thirds of the time and should show some improvement in their general health; but unfortunately one is not able to make such comparisons at this time.

I mention this because a similar report has been made by the Metropolitan Life Insurance Company, comparing the incidence of illness between their employees in their air conditioned building with those in a non-air conditioned building. These reports are undoubtedly of value, but they should not be used as an argument against the healthful effects of air conditioning properly used. I believe that it would be important to have an industrial survey report showing the incidence of accidents in a factory before and after air conditioning. In other words, I believe that the workmen are placed at a real advantage when they are subjected to an air conditioned environment, but this cannot be expected to carry them through the remaining sixteen hours of the day any more than one could expect a dose of insulin given in the morning to take care of the carbohydrates that a diabetic patient eats for his evening meal.

ALBERT G. YOUNG, M.D., Brookline, Mass.
Medical Director, Corey Hill Hospital.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

RECURRENT SMALLPOX AND SMALLPOX AFTER VACCINATION

To the Editor:—Is it possible for a person who has been vaccinated and whose vaccination has taken to have smallpox one year later? Also is it possible for one who has had smallpox once to have it again? In a controversy that is waging, I maintain that neither is possible, but I should like authority to support me. H. R. RASOR, M.D., Mancos, Colo.

ANSWER.—In this answer the statements in the question are taken at their face value. In the absence of all details with regard to the kind of vaccine used, the nature of the take and the symptoms of the attack of smallpox, only general answers to the questions can be given.

Immunity is always relative. Vaccination with typical take practically always protects against smallpox much longer than one year, but at the beginning of the second year after vaccination a gradual loss of immunity begins. It is possible that in very exceptional cases smallpox may develop in a person vaccinated with a take a year previously. Cases of that kind have been observed. Even smallpox itself does not always protect against smallpox. Two or even three attacks of smallpox may occur in the same person. In fact, varioloid is the name of a modified form of smallpox in a patient who has had a previous attack or has been vaccinated. Jenner mentioned an instance of five attacks of smallpox in the same person.

CHOCOLATE CYSTS OF OVARIES

To the Editor:—A patient aged 24 has had a bilateral oophorectomy for bilateral chocolate cysts of the ovaries. No implantations were noted at the time of the operation. The cysts had not ruptured and there were only moderate adhesions in the culdesac. How soon would any implantations disappear postoperatively if ovarian extract is not given? When is the proper time to start glandular therapy? What type of endocrine therapy and how much should be used in such a case? M.D., Illinois.

ANSWER.—Chocolate cysts of the ovaries were a gynecologic mystery until the epochal work of Dr. John A. Sampson, reported by him before the American Gynecological Society in May 1921. He stated the belief that the endometrial tissue is implanted in the ovary as a result of back flow of menstrual fluid, with its particles of desquamated uterine mucosa, through the tubal ostia. This endometrial débris enters the ovary through the ruptured follicle. (This idea discards the older theory of embryonic inclusion of müllerian epithelium in the ovaries.)

Another theory for the presence of this endometrial tissue in the ovaries is through the venous circulation, which would constitute a metastasis. Against this theory is the fact that metastasis of endometriomas from pelvic implants of similar tissue do not occur.

This implanted endometrial tissue under the influence of estrogenic stimulation is subject to the cyclic changes characteristic for normally placed endometrium in the uterus, with resultant accumulation of endometrial débris, hemorrhage and cyst formation containing dark, tarry, chocolate appearing material. These cysts may rupture into the pelvic cavity with

resultant implants, forming dense adhesions containing endometrial adenomas. The belief is current that implants from chocolate cysts are more invasive than those of uterine origin but are not malignant.

In the patient in question the cysts had not ruptured, but there were moderate adhesions in the culdesac indicating that these were implants from an undiscovered ruptured cyst or from menstrual débris escaping from the tubes.

With removal of the ovaries, these endometrial implants should atrophy in the same manner in which the uterine endometrium will atrophy following castration. This is the result of removal of estrogenic and luteal stimulation, inherent to the ovary. That these endometrial implants will atrophy beyond the stage of quiescence is doubtful. It is reasonable to believe that estrogenic treatment will reactivate the atrophied implants that remain.

Werner and his associates have shown that, in castrate girls, 5,000 international units (approximately 1,000 rat units) of theelin in oil given as a total dosage over a period of one month will stimulate endometrial growth, with resultant bleeding following its discontinuance (Werner, A. A.; Jones, Grey; Roberts, John; Broun, G. O.; Neilson, C. H., and Rothermich, N. O.: Effective Clinical Dosages of Theelin in Oil, THE JOURNAL, Sept. 25, 1937, p. 1027).

If one is not sure that the pelvic cavity is entirely clear of these implants, it is questionable whether the patient should have estrogenic therapy. Should the patient suffer considerably from menopausal symptoms the only other treatment that could be suggested would be to give the patient sedatives, such as chloral hydrate 0.16 Gm. (2½ grains) three times a day or elixir of phenobarbital 4 cc. (1 drachm) three or four times a day or any other desirable sedative. This of course should be discontinued as soon as possible.

It is well to determine the activity of the patient's thyroid; if its activity is low, desiccated thyroid may be added to the treatment.

ALLERGIC RHINITIS IN FARM BOY

To the Editor:—A boy aged 2½ years has had rhinitis since he was 9 months old. He is the only child of healthy parents. His mother and a maternal uncle have hay fever. There is no history of allergy on the father's side. The child seemed to have colic on a diluted whole milk formula, but he did nicely when the formula was changed to evaporated milk. He had a mild facial eczema when 3 months old. All the usual foods were added to his diet gradually without any evidence of allergy being manifest. His nutritional status has been good until this winter, when almost constant rhinitis resulted in a decreased appetite. The rhinitis becomes definitely worse following exposure to horses or chickens. He has had several asthmatic attacks, which were preceded by intimate contact with horses or articles which had been in contact with horses. Scratch tests are positive to milk, chicken feathers, duck feathers, goose feathers, dog hair, cat hair and horse dander, and also to kapok. Digital examination reveals an adenoid which is not significantly enlarged. The nasal mucosa is pale and boggy. The family lives on a farm within 50 yards of the barns. The house is of modern construction and it is heated by a hot air furnace which draws the air to be heated from return vents in the floors of the rooms. The child's room has been made as dust proof as possible. He uses no pillow and his mattress has been encased in a rubberized cloth, even though it is of a good quality felt construction. His toys have been carefully selected to avoid allergens. There is an incubator in the cellar. It has been noted that the rhinitis is worse following a hatch of chicks. The living-room furniture has down cushions. Soon after entering the living-room he had attacks of sneezing. He has been barred from the cellar and the living-room. Will you kindly advise me as to the treatment I can pursue to make him more comfortable? The parents are able to have the boy removed from the farm for one month, but for economic reasons they cannot afford a longer period. Should I undertake desensitization during that month? What allergens should I use and what procedure should I follow?

NELSON NEWMARK, M.D., Springfield, Mass.

ANSWER.—It is assumed from the excellent history given that the child has been examined for sensitivity to all the other foods he eats (eggs, wheat, corn, oats, meats, vegetables, fruits) and to the other common inhalants (wool, goat hair, cow hair, cottonseed) with negative results. Frequently, in the presence of perennial rather than seasonal symptoms, one may overlook the importance of pollens as a cause of trouble. This may be important especially for those living on a farm where pollens (especially those of the grasses) are found all the year round in barns. It is assumed, however, that these causes have been considered and ruled out by the examiner. We then have a patient 2½ years old, sensitive to milk, horses, feathers and cat and dog dander, living in a most unfavorable environment, a farm house only 50 yards away from the barns. The question of milk sensitivity has been well handled by giving heated (denatured) milk. It should be noted that cream should be avoided in these patients because of its content of lactoglobulin and lactalbumin in an undenatured state. The best treatment for the inhalant sensitivity is the removal of the patient from these inhalants. This procedure is so superior to attempts at "immunization" that the question of economic difficulties should be thoroughly and carefully investigated in the light of the importance of such a step for the child's health before it is considered impossible. Such a step is much more important in infancy before the development of chronic asthma with its complications than several years hence when, in spite of economic difficulties, it may have to be taken. The removal of the child even for one year from the farm to an environment free from feathers, horse dander and the other substances, aided possibly by careful and judicious hyposensitization, is to be strongly recommended.

If such a procedure is found impossible, one should clean the house of as much of the offending environmental substances as is possible. The incubators must be moved from the house, and the basement thoroughly washed of all accumulated dust which may contain particles of feathers. No matter how careful one may be, it is hardly possible to avoid the presence of fine, microscopic feather dust in a house containing an incubator in the basement. All down furniture should be removed from the house as soon as practicable. The furniture should be either reupholstered with horsehair or moss (sterilized horsehair as prepared for upholstery is not allergenic even to horse sensitive cases) or should be replaced by simple unupholstered furniture (cane or imitation leather covered chairs).

The other inhalant and contact substances mentioned may be more readily removed from the house. Dogs and cats should be strictly interdicted. The rugs and furniture that may contain their danders should be thoroughly cleaned. The avoidance of horse dander is not easy in the situation described. Riding clothes, work clothes used in the barns, manure spread as fertilizer for a garden immediately adjacent to the house—all these and many more factors that will suggest themselves to the doctor on the scene are of vital importance and must be eliminated from the patient's environment. No one should be permitted to enter the house without at least changing his work clothes if he has been in contact with chickens or horses.

In spite of all these precautions, the wind blowing from the direction of the barns or from the chicken houses may bring enough material to cause trouble. The child's room should, if possible, be moved to a part of the house most protected from this influence. Hyposensitization may be started with feathers while he is away from home for the month mentioned. The dose depends on the reaction of the patient. One cannot start with too low a dilution for the sake of safety. One-tenth cc. of a 1:1,000,000 solution of a commercial preparation given subcutaneously is probably a safe starting dose. The dosage should be raised individually in each case. The interval may be once in three days to once a week. No injection should be given until all induration is gone from the previous dose. As the dose is increased to the maximum tolerance, the interval is lengthened to about once in two weeks and the treatment maintained for as long as needed.

It would not be wise or safe to attempt hyposensitization with both feathers and horse dander simultaneously. If possible, one should avoid the injection of horse dander because of the danger of serious reactions. If it is used, it should be started even more cautiously than feathers. Finally, one must keep in mind that such patients are usually highly sensitive to horse serum and that the administration of any antitoxin made from horse serum is dangerous.

MASSIVE HYPERTROPHY OF BREASTS

To the Editor:—A woman aged 26, unmarried, has enormous hypertrophy of both breasts, which began shortly after puberty and has continued to the present. Are there any data as to the progressiveness of such a condition? It has a bad effect on the patient's psyche, as it seems to be a detriment to a possible marriage. What is the latest treatment by means of plastic surgery? CLARENCE A. WELLS, M.D., Quincy, Ill.

ANSWER.—Massive puberty hypertrophy of the breasts is an uncommon condition and, as the name implies, it usually begins to manifest itself at puberty, shortly before or after the menarche. Both breasts are usually involved but one may be considerably larger than the other. Generally the breasts grow excessively for a few months, reaching the maximum within two years. This patient has the rarer type, in which the condition continues to progress until radical treatment is instituted. The exact cause is unknown but one or more endocrine glands are involved in the process. Geschickter, Lewis and Hartman believe that the histology of gynecomastia, puberty development and puberty hypertrophy of the breast is the same. They produced typical gynecomastia in the monkey by injections of estrogenic substance. This as well as other

evidence seems to indicate that puberty hypertrophy of the breasts is an exaggeration of the normal growth changes which occur at puberty and that the direct stimulus for the breast enlargement is derived from estrin and possibly also from progestin.

At the present time there is no satisfactory way of treating puberty hypertrophy except by surgical measures. Operations for this condition can be performed whereby the patient can be assured a reduction in size of the breasts with normal configuration and location, proper position of the nipples and areolas in the new breasts, ample blood supply and little if any disturbance in breast function. Excellent descriptions of satisfactory operations have been given by Samuel Fomon (*Arch. Surg.* **33**:253 [Aug.] 1936) and by Jacques W. Maliniak (*ibid.* **31**:587 [Oct.] 1935).

SPASTIC PARAPLEGIA

To the Editor:—A man, aged 34, was diagnosed as having neurosyphilis at least eight years ago. He had a left hemiplegia in 1931, which cleared up after three or four months, and a year later he had a syndrome of spastic paraplegia, the arms not being involved. The blood and spinal Wassermann reactions at that time were both positive and a syphilitic gold curve was present. He was given malaria and about a year of continuous chemotherapy between 1932 and 1934. Since then he has had mercury rubs and potassium iodide. His blood Wassermann reaction is positive but the spinal Wassermann reaction is negative. The patient has daily massaged his limbs so that in spite of the fact that he is continuously in a wheel chair the disuse atrophy is surprisingly small. The knee jerks are hyperactive bilaterally, and a positive Babinski is present bilaterally. The spasticity is not painful. The cranial nerves are intact; there are no sensory or bladder disturbances. His general physical condition is good. Do you think that the Foerster operation for spasticity would be worth trying in such a case? He is anxious to try anything that may possibly help.

M.D., California.

ANSWER.—The opinions of syphilologist, neurologist and neurosurgeon would indicate that this patient is not a likely candidate for the Foerster operation. It might be that an examination would change that opinion but, in view of the fact that the spasticity is not painful, the advisability of such an operation is questionable. Of course, before expressing a concrete opinion with regard to such an operation it would seem advisable to become more familiar with the condition of the patient's spinal cord to determine whether or not there is degeneration or compression of the spinal cord present. While it is true that the operation might relieve some of the spasticity, it is questionable that it would in any way increase the patient's ability to walk, and in view of the fact that there is no pain, such an operation does not seem warranted.

TOXICITY OF PHENOL IN PRESCRIPTION

To the Editor:—Could the following prescription possibly be harmful to a patient:

℞ Phenol		1 minim
Glycerin		10 minims
Peppermint water	sufficient to make	1 ounce

Take contents of bottle without water.

What would be the lethal dose, idiosyncrasy and toxicity of such a mixture?

M.D., North Carolina.

ANSWER.—This prescription contains only two ingredients that might have a decided systemic action, phenol and peppermint, the water and glycerin being merely the vehicle.

Peppermint water contains about 0.2 per cent of oil of peppermint. The prescription contains 0.06 cc. (1 minim) of the oil. The U. S. P. dose of the oil is 0.1 cc. (1½ minims). Although no data are available as to the exact toxicity of oil of peppermint, a case is known in which about 1 ounce of the oil was taken through carelessness, the only noticeable results being a laxative action and a burning at the anus.

Phenol has a U. S. P. dose of 0.06 Gm. (1 grain), and for the liquefied phenol (90 per cent phenol and 10 per cent water) 0.06 cc. (1 minim). Glycerin favors the absorption but decreases the potency of phenol, but the small quantity of glycerin present in this prescription would have practically no such influence.

The toxicity of phenol varies widely for different individuals. Children are more susceptible than adults. In the adult wide variations have been reported by investigators; 5 Gm. (75 grains) has been reported as causing death. Other investigators have reported the fatal dose as varying between 8.5 and 60 Gm. Thus the minimum lethal dose for man cannot be fixed accurately. In young children poisoning has been reported from 0.2 to 0.5 Gm. (3 to 8 grains) when given in 3 per cent solution. Absorption and elimination are rapid, so that a cumulative action rarely results. Since phenol is largely detoxified in the liver there is much less systemic action if absorbed from the stomach than if absorbed from the skin of the bladder.

From these facts it would appear that many times the quantity of this prescription, in which the dilution of the phenol is less than 0.2 per cent, would be required to cause any serious disturbance, and the lethal dose of the prescription would be extremely large.

INJECTIONS FOR ECHINOCOCCUS CYST

To the Editor:—Two months ago I operated on a patient for an echinococcus cyst. The cyst was too large to enucleate entirely, so I cleaned it out as much as possible and put a rubber tube into the cyst cavity. Can you suggest some nonoperative method by which I could obliterate the cyst cavity and thus permit it to close? I was thinking of the possibility of injecting some substance into the cavity for this purpose.

M.D., New Jersey.

ANSWER.—Prolonged drainage from an incised echinococcus cyst frequently occurs and is due to persistence of daughter cysts, failure to destroy the chitinous lining and secondary infection. For this reason it is preferable, after a satisfactory exposure and isolation, to aspirate the cyst, inject it with 2 per cent liquor formaldehydi, then incise and remove the chitinous membrane, close up the cavity and obliterate the dead space. Mopping out the cavity or injecting it with from 2 to 4 per cent liquor formaldehydi after the cavity has been draining for several weeks is not as effective but may still bring results. If the cyst referred to is in the liver, special care should be exerted not to break up the adhesions around the sinus and spill the formaldehydi solution into the free peritoneal cavity. The injections should not be repeated too often, as they may result in a prolonged drainage of the bile.

ULTRAVIOLET LAMP FOR CORNS

To the Editor:—I have an ordinary Sun-Rival Ultraviolet lamp using a number 68 Everready carbon. By employing a number 20 plus spherical lens to concentrate the rays from this lamp, can corns and warts be removed? Is bichloracetic acid better than concentrated light in the treatment of corns?

ROBERT MONFORT, M.D., Onaway, Mich.

ANSWER.—Concentration of light rays on callosities cannot be expected to be of much value in their removal. The penetration of light rays is so slight that even strongly concentrated radiation is not particularly effective for this purpose. The use of concentrated acids for removal of corns or callosities is likewise not recommended because of danger of damage to normal tissues.

The most logical treatment is to pare down the callosities under antiseptic precautions as much as possible by means of a sharp scalpel, going only to the depth of the normal tissues. Following such paring, occasionally an application of an ointment containing 30 per cent salicylic acid in hydrous wool fat may be used to soften the deeper portions of the callosity, after which further cautious paring may be done. The important point in the treatment of corns is to remove friction. For this purpose the callosity should be shielded until it finally disappears, and carefully fitted shoes should replace the ones which have produced the corns. Even if corns are removed, they will promptly return unless the friction that caused them is eliminated.

DANGERS FROM GALVANIZING SHEET METAL

To the Editor:—Is exposure to the fumes of acids arising from the vats in the process of galvanizing sheet metal recognized as a direct or contributing factor in the development of pulmonary disease? Reference to authoritative literature would be appreciated.

M.D., Wisconsin.

ANSWER.—In general galvanizing work the chief fume produced is zinc oxide, which is not an acid. This fume may give rise to metal fume fever, which is primarily a respiratory disease (Sayers, R. R.: Metal Fume Fever and Its Prevention, *Pub. Health Rep.* **53**:1080 [July 1] 1938). Extensive work also has been reported by Drinker and his associates (*J. Indust. Hyg.* **9**:88, 98 [March], 187 [May], 331 [Aug.] 1927). Ammonium chloride is widely used as an overlying coating above molten metal, which might lead to respiratory irritation but has attracted little attention. In the galvanizing of metal sheets, some plants make use of a bath of molten or flaming sulfur, which may become sulfurous acid. This gas or vapor is highly irritating in low concentrations. The effects of sulfur dioxide have been discussed by Kehoe and others (but with reference to another industry) in an article in the *Journal of Industrial Hygiene* (**14**:159 [May] 1932) entitled "On the Effects of Prolonged Exposure to Sulfur Dioxide."

However, in the preparation of sheet metal prior to galvanizing, sulfuric acid vapors may appear and may be irritating.

Ordinarily, sulfuric acid will not evaporate. Acid may leave pickling vats as a constituent of steam and on the evaporation of the water component may be present in high concentrations. Such acid vapors may induce inflammation of the upper respiratory with bronchitis. In any given galvanizing room, if the galvanizing pots producing zinc oxide are near pickling vats, which may emit sulfuric acid, their combination may take place in the atmosphere, leading to zinc sulfate, which is a definite irritant. This combination has led to inflammation of the gastrointestinal tract eventuating in ulceration (McCord, C. P.; Friedlander, Alfred; Brown, W. E., and Minster, Dorothy K.: An Occupational Disease Among Zinc Workers, *Arch. Int. Med.* **37**:641 [May] 1926).

This industrial operation, under certain conditions, may provoke several occupational diseases, but involvement of the respiratory tract does not stand out as preeminent.

MIXED VACCINE IN BRONCHITIS

To the Editor:—A man aged 58, a pilot, complains of chronic bronchitis of many years' duration. He has had various treatments by a number of physicians with little or no relief. On two occasions during the last year, the treatment consisted of Lederle's combined pertussus vaccine. The patient reports that there is more relief from this treatment than from anything else he has received. Is the result psychic or is the treatment of benefit? GEORGE GOOD, M.D., Union City, N. J.

ANSWER.—Various types of vaccines have been used in the treatment of chronic bronchitis and chronic bronchial asthma. The preparation given is representative of most of the respiratory vaccines used except that it also contains Bardet bacilli. No one has proved any special virtue in the use of the latter organisms in chronic bronchitis or asthma, nor is there any definite proof that autogenous are better than stock vaccines.

The apparently good results obtained were probably not psychic but similar to those obtained by the administration of other nonspecific proteins, which unfortunately are usually of only temporary duration. To obtain success with vaccines many believe that it is necessary to inject doses large enough to obtain definite local reactions. If asthma also is present the patient should be given the benefit of thorough cutaneous testing. Something in the environment or diet may be discovered the removal of which may be of great service to the patient.

BLADDER AND RECTAL COMPLICATIONS FROM SUBARACHNOID ALCOHOL INJECTIONS

To the Editor:—Is it possible to have bladder complications (retention or incontinence) without rectal complications (incontinence) following the subarachnoid injection of absolute alcohol? What is the incidence of bladder dysfunction following the subarachnoid injection of absolute alcohol, and what is the average duration and prognosis?

M.D., Florida.

ANSWER.—It is impossible to give accurate data concerning the incidence of loss of vesical function or the incidence of rectal incontinence following subarachnoid injections of alcohol. It is possible to have vesical complications such as retention or incontinence without rectal complications, or vice versa, following the subarachnoid injection of absolute alcohol. It is not possible to predict, prior to such an injection, whether a patient will lose control of the bladder or rectum, or both, but a patient on whom this procedure is to be performed should be impressed with the fact that either or both of these complications may occur. Likewise, it is not possible to give any accurate data as to how long these complications will persist if they do occur and, consequently, the prognosis necessarily must be guarded in each case.

DANGERS OF INTRAVENOUS INJECTION OF DEXTROSE SOLUTION

To the Editor:—Are there any reported harmful effects resulting from the continued use of dextrose intravenously? M.D., West Virginia.

ANSWER.—Experimentally in animals 10 per cent dextrose in water given intravenously has produced serious and even fatal results from amounts comparable to those used clinically. There is such a variation in the indications and course of the conditions for which dextrose solutions are given that it is difficult to outline more than their general use, particularly since there are so many diverse opinions.

The maintenance of the water balance is of importance particularly when given over a period of time, unless it is the intent as in cerebral edema to dehydrate the patient. It is only when chlorides are indicated that they may be added to a weaker solution, such as one of 2.5 per cent. Rarely is it indicated in ordinary conditions such as after operation to give more than a 5 or 6 per cent solution. The urine should be tested frequently for sugar. A practical method of checking the water balance is by determining the twenty-four hour output and specific gravity of the urine. Blood chemistry estimations are more accurate but frequently too expensive to be practical. Locally, thrombophlebitis occurs more frequently after the high concentrations.

One must try to avoid the extreme discomfort, tendency to pressure sores and pulmonary edema resulting from the patient's lying in one position for continuous or prolonged intravenous administration.

GRINDING TEETH IN CHILD

To the Editor:—A little girl, aged 4½, who seems in splendid health, has acquired the habit of crunching or gritting her teeth while asleep, especially when she lies on her back. I have consulted various books but find no mention of this condition. Could you please tell me the cause of such a condition and treatment? M.D., Louisiana.

ANSWER.—The exact cause for grinding or gritting of the teeth has not yet been determined. The condition, however, seems to occur most frequently in children of so-called neuropathic constitution. These children, as a rule, are restless and irritable, and they sleep more or less poorly. The condition in itself does not result in any damage to the teeth in the majority of instances, nor does it seem to have any detrimental effect on the health. With increasing age the disorder, in almost every instance, disappears. Treatment should be directed toward the reduction of the child's nervousness, by assuring an opportunity to obtain plenty of rest, sleep, fresh air and sunshine. Calcium therapy given concurrently with vitamin D preparations is suggested in some cases.

ALOPECIA AREATA

To the Editor:—A man aged 30 has been gradually losing his hair in three large spots on his head. It pulls out without any sign of a root but leaves the scalp smooth. It doesn't change in color. Please advise as to treatment. M.D., Idaho.

ANSWER.—The patient has alopecia areata. This may be due to nervous shock or to long continued mental strain. Attention should be paid to the patient's general physical condition and any foci of infection removed. Locally the affected areas can be painted lightly by the physician every ten days with a 50 per cent solution of tricresol. Every other night the areas can be anointed with a 12 per cent sulfur ointment or, if preferred, the following lotion can be rubbed in:

	Gm. or Cc.
Mercury bichloride	0.02
Chloral hydrate	8.
Spirit of formic acid	15.
Castor oil	1.
Alcohol ....sufficient to make	180.

The quartz lamp is also of value in certain cases. Sufficient treatments should be given to cause an erythema and they should be given once or twice weekly.

TERPIN HYDRATE IN ISO-ALCOHOLIC ELIXIR

To the Editor:—In THE JOURNAL, Sept. 14, 1935, Bernard Fantus presented in an article on advances in therapeutic technic an example of the use of an iso-alcoholic elixir consisting of terpin hydrate 5 Gm. and iso-alcoholic elixir to make 60 cc. I have been unable to have the prescription filled. One druggist asked the patient to return in twenty-four hours; others refused to attempt it. One druggist filled it but the mixture was cloudy. Why? ROBERT M. HOLLAND, M.D., Boston.

ANSWER.—There is no incompatibility whatever when the high-alcoholic elixir (N. F. VI) is employed, as is obviously intended when iso-alcoholic elixir is prescribed: terpin hydrate requires a highly alcoholic vehicle for solution.

ALLERGIC BLEPHARITIS

To the Editor:—In Queries and Minor Notes in THE JOURNAL of July 16 Dr. E. H. Brown's question on allergic blepharitis suggests that my own case might be of interest. For some years I have been subject to occasional attacks of blepharitis, which I believe are allergic in nature because of the conditions of their onset, the accompanying symptoms and the response to treatment. The attacks most often occur after driving in the country or exposure to the dust of pillows. They are usually preceded by a short, dry cough and tickling in the chest and throat, so slight and of such short duration that I only recently connected it with the blepharitis; severe attacks are often accompanied by nasal congestion and the misery of hay fever. A 1 per cent solution of ephedrine sulfate sprayed into the nose when an attack threatens has for three months now been completely effective in forestalling the attacks; if the swelling has already begun, a little of the same solution directly in the eyes causes rapid remission of the symptoms. EDWARD R. SMITH, Meriden, Conn.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, August 20, page 743.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Examinations will be held in all centers where there is a Class A medical school and five or more candidates who wish to write the examination, Sept. 12-14. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An affiliate of the American Board of Surgery. New York, Oct. 21-22. Applications must be filed sixty days prior to examination. Sec., Dr. Paul M. Wood, 745 Fifth Avenue, New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various large cities in the country about Oct. 1. *Oral.* St. Louis, Nov. 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: Written examinations will be held in various parts of the United States, Oct. 17 and Feb. 20. Application for the October examination must be received before Sept. 15 and for the February examination on or before Jan. 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B applicants will be held in various cities of the United States and Canada, Nov. 5. Last date for applications is Sept. 5. General examination for all candidates (Groups A and B) will be given in St. Louis, June. Applications must be filed not later than sixty days prior to date of examination. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: New York, Oct. 7, and Washington, D. C., Oct. 8. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Memphis, Tenn., January. Applications for this examination must be filed with the Secretary on or before Oct. 15. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Washington, D. C., Oct. 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Detroit, October 26; Rochester, N. Y., November 13; and Oklahoma City, November 15. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 28-30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., Sept. 15-18. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF UROLOGY: New York, Jan. 13-15. Applications must be submitted not later than Oct. 1. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Kansas June Examination

Dr. J. F. Hassig, secretary, Kansas Board of Medical Registration and Examination, reports the written examination held at Kansas City, June 7-8, 1938. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Eighty-three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1938)	80.5
Northwestern University Medical School		(1938)	87.9
Rush Medical College		(1937)	85.5
University of Illinois College of Medicine		(1938)	85.5
University of Kansas School of Medicine		(1938)	79, 80.6, 81, 81.6, 81.6, 81.7, 82, 82, 82.2, 82.3, 82.5, 82.7, 82.9, 83, 83, 83.2, 83.3, 83.4, 83.5, 83.5, 83.6, 83.7, 83.9, 84, 84.2, 84.2, 84.4, 84.7, 84.8, 84.8, 84.9, 85, 85, 85, 85.2, 85.5, 85.5, 85.7, 85.8, 86.1, 86 ?. 86.3, 86.3, 86.4, 86.5, 86.5, 86.6, 86.6, 86.9, 86.9, 86.9, 87.3, 87.4, 87.6, 87.7, 87.7, 87.8, 88.3, 88.4, 89, 89, 89, 89.4, 89.8, 90, 90.2
Boston University School of Medicine		(1930)	85.1
Creighton University School of Medicine		(1937) (1938)	81.9, 77.6, 80.4, 81.4, 82.3, 85.9
University of Oklahoma School of Medicine		(1936)	82.2
Meharry Medical College		(1938)	83.2
University of Wisconsin Medical School		(1937)	84.7, 86.4
Medizinische Fakultät der Universität Wien		(1936)	80.5*

Thirteen physicians were licensed by reciprocity and two physicians were licensed by endorsement on May 10 and July 1. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School		(1935)	Illinois
University of Illinois College of Medicine		(1936)	Illinois
University of Kansas School of Medicine		(1908)	Missouri
St. Louis Univ. School of Medicine		(1924), (1936), (1937)	Missouri
Creighton University School of Medicine		(1935)	New Jersey
Ohio State University College of Medicine		(1934)	Ohio
University of Cincinnati College of Medicine		(1920)	Indiana
Marquette University School of Medicine		(1931)	Wisconsin
University of Wisconsin Medical School		(1935) (1936)	Oklahoma, Wisconsin
Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg		(1914)	Texas

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College		(1925)	N. B. M. Ex.
Harvard University Medical School		(1932)	N. B. M. Ex.

* License has not been issued.

Colorado June Report

Dr. Harvey W. Snyder, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, June 15-17, 1938. The examination covered 8 subjects and included 163 questions. An average of 75 per cent was required to pass. Forty-three candidates were examined, all of whom passed. Ten physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1938)	78.5, 82, 83
University of Colorado School of Medicine		(1938)	80, 81, 81, 82, 82.5, 83, 83, 83.5, 84, 84, 84, 84, 84, 84, 84, 84.5, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 88, 88, 89
Northwestern University Medical School		(1938)	92
Osteopath *			77.5

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Kansas School of Medicine		(1916),	(1936) Kansas
Johns Hopkins University School of Medicine		(1912)	Ohio
Barnes Medical College, Missouri		(1904)	Kentucky
Washington University School of Medicine		(1935)	Missouri
University of Nebraska College of Medicine		(1935),	(1937) Nebraska
University of Rochester School of Medicine		(1936)	New York
University of Cincinnati College of Medicine		(1934)	Ohio
University of Wisconsin Medical School		(1932)	Oklahoma

*Licensed to practice medicine and surgery.

Wyoming June Examination

Dr. G. M. Anderson, secretary, Wyoming State Board of Medical Examiners, reports the oral and written examination held at Cheyenne, June 2, 1938. The examination covered twelve subjects and included 120 questions. An average of 75 per cent was required to pass. Five candidates were examined, all of whom passed. Two physicians were licensed by reciprocity after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1937)	83
Northwestern University Medical School		(1938)	80*
Rush Medical College		(1937)	84
University of Illinois College of Medicine		(1937)	78
Creighton University School of Medicine		(1936)	77

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School		(1922)	Iowa
Univ. of Michigan Dep't of Medicine and Surgery		(1899)	Montana

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

South Carolina June Report

Dr. A. Earle Boozer, secretary, State Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, June 27-29, 1938. The examination covered seventeen subjects and included fifty-six questions. An average of 75 per cent was required to pass. Forty candidates were examined, thirty-nine of whom passed and one failed. Eight physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Emory University School of Medicine		(1938)	84
University of Pennsylvania School of Medicine		(1938)	86.9
Medical College of the State of South Carolina		(1938)	78.3, 79.5, 79.9, 79.9, 80.4, 80.6, 81, 81.6, 81.6, 82.1, 82.3, 82.3, 82.5, 84, 84, 84, 84.1, 84.9, 85.1, 85.3, 85.4, 85.8, 86.1, 86.1, 86.5, 86.5, 86.6, 87.3, 87.8, 88.1, 88.3, 88.3, 88.4, 88.6, 90, 90.6
University of Vermont College of Medicine		(1935)	86.8

School	FAILED	Year Grad.	Per Cent
Boston University School of Medicine		(1899)	71.6

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia School of Medicine		(1936, 2)	Georgia
Bennett Medical College, Chicago		(1913)	Illinois
Tulane University of Louisiana School of Medicine		(1934)	Louisiana
Ohio State University College of Medicine		(1934)	Ohio
University of Tennessee College of Medicine		(1934), (1937)	Tennessee
Medical College of Virginia		(1933)	Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Duke University School of Medicine		(1935)	N. B. M. Ex.

Book Notices

General Technic of Medication: An Introduction to Medicinal Technology. By Bernard Fantus, M.S., M.D., Professor of Therapeutics, University of Illinois College of Medicine, Chicago. Third edition. Cloth. Price, $2. Pp. 626. Chicago: American Medical Association, 1938.

The stated purpose of this book is to combat the slipshod methods so characteristic of many physicians in ordering medicines. While the author does not avowedly present a textbook on the prescription and is apparently far from considering his work a treatise on therapeutics, from the pedagogic point of view he nevertheless manages to make distinct contributions in both fields. It is indeed the reviewer's opinion that no finer book on prescription writing than this exists and that were its use compulsory in all medical schools the profession would rapidly advance in the "technic" of medication. But unfortunately few schools have a place in the curriculum for such "major" hours as a prescription course based on this work would require. Considering the book as a supplementary textbook in therapeutics only, one may question the advisability of burdening the student with pages of description of procedures which can be grasped in a few minutes of sharp watching in the hospital. Nevertheless there is something of undoubted value for the practicing physician on nearly every page of this book, and considering the essentially tedious nature of these subjects they are presented in a manner as little tiring as one could probably hope for. The third edition is brought well down to date and includes of course such alterations as were necessitated by new editions of the U. S. Pharmacopeia and the National Formulary.

The Psychology of Early Growth Including Norms of Infant Behavior and a Method of Genetic Analysis. By Arnold Gesell, Ph.D., M.D., ScD., Director of the Clinic of Child Development and Professor of Child Hygiene in Yale University, and Helen Thompson, Ph.D., Research Associate in Biometry, The Yale Clinic of Child Development. Assisted by Catherine Strunk Amatruda, M.D., Research Pediatrist, The Yale Clinic of Child Development. Cloth. Price, $4. Pp. 290, with 30 illustrations. New York: Macmillan Company, 1938.

This latest volume from the clinic of child development at Yale University maintains the high scientific standards as well as the pleasing format of earlier publications. It takes the place of the volume, now out of print, on the Mental Growth of the Preschool Child and adds thereto a fully documented account of mental and physical growth during infancy on which have already been published An Atlas of Infant Behavior, Infancy and Human Growth, and Infant Behavior.

When a physician takes up a volume which describes stages of development, he expects, on the basis of physical measurements to which he is accustomed, to find quantitative determinations neatly and clearly defined which he may use with little or no qualifications as measures of progress. He may therefore feel somewhat at a loss at first in finding that no such simple and concrete measures are possible for determining behavior. He is apt not to realize that in dealing with psychomotor processes he is exploring a dynamic complex of which the outlines are indeed fundamentally regulated by intrinsic determiners but of which the expression is modified by a sensitivity to environmental influences.

The reviewer has recently had the opportunity to watch the efforts of a month-old monkey (Macacus rhesus) learning to use its locomotor mechanism. The animal could not yet sit up with any security. Nevertheless it was attempting to "muscle up" on parallel bars and to climb a trellis. Every now and then it would fall down on its back and could roll over prone only with help from its mother. Roentgenograms showed that its bodily development was already the equivalent of that of a child between 5 and 6 years of age. Therefore one may assume, on the basis of Coghill's work, that the motor pattern in the monkey was already fully established and that learning and experience alone were necessary to transform its motor capacity into motor ability. It was engaging all postural and prehensile motor patterns at once. In two weeks' time the monkey had learned to use with fair efficiency its several motor capabilities.

Man however is born in a far more immature stage of development. The delimiting motor patterns complete themselves slowly. Prehensile capacity, though appearing early, undergoes progressive development over a period of eighteen months. Postural and locomotor capacity, though also appearing early, continue to develop so that the child is already 3 years old before he can learn to ride a tricycle.

This great extension of time for the development in man of motor patterns which are already complete in the monkey soon after birth means that infants must very gradually transform these slowly maturing motor capacities into motor abilities. There will then be unequal developments in motor patterns and seeming contradictions in motor abilities rendering impossible the definition of stages by simple rules. Each stage is represented by a constellation of activities, not by a single achievement. Once the physician has mastered this fundamental conception, he will have no difficulty in following the clearly described stages in development portrayed by the authors.

There are however five different fields of behavior for human psychomotor development, namely postural, prehensile, perceptual, adaptive and language. Although the constellation of achievement in each of these gives important information on the stage attained, the composite maturity levels of each must not be averaged. The maturity level in postural behavior, for example, is more accurately determined than that of social (adaptive) behavior because of the greater number of items in reference to posture.

There are allusions on page 223 to clinical relationships of stages attained in these several fields, but as the authors are concerned only with the achievements in health and in uninterrupted progress, these are merely sketched in outline. Nevertheless a careful study of the text, which is not to be accomplished without sweat and tears, will guide the clinician to a correct interpretation of his observations. The volume makes a distinct contribution to our study of the standards of health.

The Truth About Vivisection. By Sir Leonard Rogers, K.C.S.I., LL.D., M.D., Hon. Treasurer, Research Defence Society. Cloth. Price, 5s. Pp. 182, with 9 illustrations. London: J. & A. Churchill, Ltd., 1937.

Nowhere has there been a more complete or comprehensive puncturing of the claims of the antivivisectionists than in England, where two royal commissions have gone into the matter exhaustively and in each instance have brought in conclusions favorable to the continuation of the use of animals in research. They have, in other words, found the claims of the opponents of scientific research untenable. Yet, as this book points out, the activities of the antis continue unabated and are based, as always, on the same old tissue of lies, evasions, garbling of quotations, suppression of evidence, emotionalism, hair tearing, breast beating, and screaming charges which are never substantiated. This little book brings the picture of antivivisectionism in England down to date by cataloguing the activities of the sect since the second royal commission of 1906; the first royal commission met in 1875. The author points out that in spite of the findings of the royal commissions the antivivisectionists still:

1. Continue to deny and contradict the unanimous verdicts of two royal commissions.
2. Continue to deny the ethics of animal experimentation.
3. Continue to make their often refuted charges of cruelty.
4. Continue to use misleading statements condemned by the royal commissions.
5. Continue to waste donated and trust funds in the pursuit of objectives rejected by two royal commissions.

This book, which so completely, logically and devastatingly reduces all the claims of the antivivisectionists to absurdity and shows how their activities are contrary to the public interest, should be of great interest to American readers because American antivivisectionists adopt the same tactics and often fall back on quotations from British sources or cite conditions or experiences in England as a basis for their demands in this

country. A knowledge of the collapse of their movement in England under the pitiless and unimpeachable investigation of a royal commission in 1875 and another in 1906, plus the evidence that they have learned nothing and forgotten nothing as a result of these experiences, should lead to a renewed vigilance in this country against their possible inroads. They are constantly on the alert to break in. As this is written, they are endeavoring to initiate a measure in California under the specious title of "Humane Pound Law," which, if enacted, will cripple medical education in that state, to say nothing of placing handicaps on all research involving the use of animals and hampering the teaching of all the biologic sciences and the manufacture and testing of biologic products and many drugs.

The Practice of Urology. By Leon Herman, B.S., M.D., Professor of Urology, University of Pennsylvania Graduate School of Medicine, Philadelphia. Cloth. Price, $10. Pp. 923, with 504 illustrations. Philadelphia & London: W. B. Saunders Company, 1938.

A new book on the practice of urology designed primarily for the general practitioner and surgeon should be of great aid to the medical profession in general. While not written in the usual textbook manner, the book should be of value to the medical student as a source of reference. Each section is well outlined and the work as a whole makes good reading. The sections dealing with the various aspects of the diagnosis and treatment of diseases of the urogenital system are discussed from the author's own point of view. It is of interest to note that he believes that nephropexy is again returning into favor among urologists. His discussion of the subject, however, is not convincing and the chapter ends with a plea for renal sympathectomy at the time of nephropexy in order to obtain best results. His discussion of the subject of lithiasis is not well balanced. Too much space is devoted to detailed description of dietary therapy of unproved value. The relative importance of excretory urography in diagnosis, particularly in the hands of the general practitioner, has not been sufficiently stressed. There is too little reference to European literature, and the quotations from American references are in some instances not as carefully selected as they might be. The illustrations are as fine as any to be found in present day volumes. Dr. Herman has given a valuable contribution to the field of medical literature and it is in keeping with the best traditions of Philadelphia medicine.

Public Health and Medical Licensure in the State of Mississippi 1789-1937. By Felix J. Underwood, M.D., Secretary and Executive Officer, Mississippi State Board of Health, and R. N. Whitfield, M.D., Assistant Secretary, Mississippi State Board of Health. Cloth. Price, $1. Pp. 175, with illustrations. Jackson, 1938.

The Mississippi State Board of Health was formed in 1877, the necessary law having been modeled after that of Georgia, thus making the board of health essentially a product of the Mississippi State Medical Association. There was no appropriation until the following year, when the legislature granted $250 for the salary of a secretary on a part time basis, $1,000 for expenses of members attending meetings, and $1,500 for books, stationery and supplies.

Mississippi had a severe epidemic of yellow fever in 1878. The town of Holly Springs had 1,440 cases with 304 deaths. The records of yellow fever at Orwood and Taylor kept by Dr. H. A. Gant were useful to Walter Reed in his experimental work on mosquito transmission. Dr. Gant, who was a member of the Mississippi State Board of Health from 1890 to 1901, was associated with Dr. H. M. Carter during this epidemic. When this book was written (1937) Dr. Gant was still living at Columbia, Tenn.; his recollections of yellow fever epidemics were recently published in the Mississippi Doctor.

The modern history period of public health in Mississippi began in 1910. Credit is given to Dr. W. S. Leathers for bringing the health work of the state from obscurity to prominence. The Bureau of Vital Statistics was established in 1912; the state was admitted to the death registration area in 1919 and to the birth registration area in 1921. A campaign against typhoid in one county in 1914 directed by a member of the U. S. Public Health Service was the beginning of federal participation in Mississippi's health program. Then came the beginning of full time county health departments about 1917, and of malaria control in 1915. The Rockefeller Foundation gave financial assistance and personnel to organize the program and in 1929 a separate division of malaria control was established.

Joseph Goldberger and George Wheeler of the U. S. Public Health Service carried on experimental work on pellagra at the Mississippi Penitentiary, certain prisoners accepting the governor's offer of pardon for submitting themselves to the experiment. Goldberger and Wheeler concluded from the experiments that pellagra developed in at least some of the volunteers as a result of a restricted diet. The Mississippi State Tuberculosis Sanatorium was established in 1916. During the influenza pandemic in 1918-1919 there were 9,234 deaths reported in Mississippi and 213,104 cases. A Department of Child Hygiene and Public Health Nursing got under way in 1921 with Dr. Felix J. Underwood, then director of the Monroe County Health Department, in charge. A progressive public health law was approved by Governor Whitfield in 1924, in which year Dr. Underwood became state health officer. The book contains also discussions of public health regulations and biographies of those who have taken part in the development of public health work in Mississippi.

Feeding Behavior of Infants: A Pediatric Approach to the Mental Hygiene of Early Life. By Arnold Gesell, Ph.D., M.D., Sc.D., Professor of Child Hygiene and Director of the Yale Clinic of Child Development, the School of Medicine, Yale University, and Frances L. Ilg, M.D. Cloth. Price, $4.50. Pp. 201, with 200 illustrations. Philadelphia, London & Montreal: J. B. Lippincott Company, 1937.

This volume is devoted to the behavior aspects of infant feeding. It deals particularly with normal feeding behavior and minor deviations from it. The material in the first section of the book is based on a study of the general behavior development of normal children within the period from birth to six years. Then follow chapters covering the motor mechanisms of feeding, including suckling, mastication and swallowing. There is a description of the implements and technics of feeding, breast and bottle behavior, and behavior with spoon, cup, mouth and hands. The third section deals with the regulation of feeding behavior, while in the appendix there are included illustrative biographies. One of the most common problems facing the pediatrician are difficulties in the feeding of infants. The material in this book should aid him in meeting these problems. The descriptions of normal behavior will also guide the physician in directing the mother concerning the infant's training so that he may suggest attempts at training only when the infant is mentally and physically equipped to form the desired habits. This book will be found valuable not only to physicians but also to parents and students of child development.

A Handbook of Accepted Remedies: Symptoms and Treatment of Poisoning; Diagnostic Procedures; Miscellaneous Information. Edited by P. J. Hanzlik, M.D., Professor of Pharmacology, Stanford University School of Medicine, San Francisco, California. Department of Public Health, San Francisco, California, J. C. Geiger, Director. Second edition. Paper. Price, $1. Pp. 115. San Francisco: J. W. Stacey, Inc., 1937.

The first edition of this book appeared in 1936. It contained data based in part on standard textbooks of pharmacology, therapeutics, toxicology and clinical pathology, Accepted Dental Remedies and various A. M. A. publications. The second edition, based on revisions of the same source books, includes such new items as Allantoin and Urea, Benzedrine, Crystalline Vitamin B, Mecholyl, Protamine Zinc Insulin, Sulfanilamide and Vinethene. Under "Poisonings," sections on Sulfanilamide and War Gases have been added. There is new material on calculation of doses for man which is not particularly significant. Also added are a nomogram for body surface, a description of the x-ray unit r, a table of the international atomic weights and some statistical formulas used in medicine. There is a new short section on official assays. Mercurochrome and Dinitrophenol have been omitted. It would seem advisable in subsequent editions for the author to refrain from including a title "Endocrine Disturbances" unless he extends the present list of endocrine principles to include their therapeutic uses. On the whole, the information contained in this book is very useful and it should save considerable time for those engaged in work which requires reference to these data. The author deserves much commendation for the excellent result of his efforts to include so much useful

data in a compact handbook. It may be presumed that it enjoys a popularity far beyond that of the staff of the San Francisco Hospital for which it was primarily designed.

Zur Entdeckung der Insulinschocktherapie bei akuten Geisteskrankheiten, insbesondere bei der Schizophrenie. Von Dr. Julius Schuster, gewesener I. Assistant der Pázmány Péter-Universität Psychiatrisch Neurologischen Universitätsklinik in Budapest. Paper. Price, 2 pengö. Pp. 90. Budapest: Druckerei der Pester Lloyd-Gesellschaft, [n. d.].

This book is published by the author mainly to demonstrate his ability with this method. He tried to accumulate extensive material from the literature on insulin but unfortunately so carelessly that the excerpts lose the value which they had in the original papers. The clear understanding of hypoglycemic, pharmacologic shock in the interpretation of Sakel is to the author after many years of common knowledge apparently unknown. He has confused hypoglycemic shock with brain shock so called by him and in another place he does not differentiate both from allergic shock. The book is so confused that it cannot confuse anybody.

The Truth About Childbirth: Lay Light on Maternal Morbidity and Mortality. By Anthony M. Ludovici. Cloth. Price, $2.50. Pp. 294. New York: E. P. Dutton & Co., Inc., 1938.

This amazing book stems its origin from the serious reveries of a serious layman. Mr. Ludovici, known to English and American readers as an experienced essayist, pondered on the hitherto inexplicable enigma that easy labor was the portion of primitive woman and dystocia the commonplace for her civilized descendants. From these reveries there arises a series of rational explanations supported by a broad, multitongued literature. Any doctor will be awed by this layman's erudition and thoroughness even though many of the conclusions may appear unwarranted. Each statement of fact is supported by the page reference of the author's authority. The chief defect of the book is that its author writes like a missionary. Throughout he is a humorless protagonist, a fire-eating zealot, a Don Quixote tilting at windmills. Moreover, through some distortion of vision he seems to think that physicians are in league with the devil and together they scheme, plot and strive to make labor annually more difficult and more unsafe.

In the introduction Mr. Ludovici disposes of the hoax that childbearing is an illness. He is convinced with full freudian conviction that the current attitude to regard birth as an illness is the work of womankind, who subconsciously creates this lugubrious atmosphere as "a means of acquiring power over the male."

In chapter I Mr. Ludovici discusses easy childbirth, quoting extensively from explorers and anthropologists to prove that in yesteryear primitive women labored as rapidly and painlessly as do subprimate animals today. In chapter II he goes beyond this and argues that childbirth should actually be pleasurable. In the third chapter, which is on normal childbirth, he points out that an average labor is not necessarily a normal labor, not more so than the average set of teeth in a community is necessarily a normal set of teeth. In the second part of this book, chapters IV to VIII, he considers the conditions of modern life which operate against normal, painless, pleasurable and safe childbirth.

All in all Mr. Ludovici has written a strong, thought-provoking book. It contains a wealth of intelligent material with an excellent bibliography and index. Many of the author's conclusions the reviewer takes issue with, as would most doctors.

Middle Age is What You Make It. By Boris Sokoloff, M.D., Sc.D. Cloth. Price, $1.75. Pp. 204. New York: Greystone Press, 1938.

This book on the hygiene of middle age was written by a physician who died in his early fifties. It is a difficult book to evaluate. In many respects it is far too technical for the lay reader, for whom it is intended. It is not sufficiently comprehensive for the physician. The author is obviously widely read in medical literature, but apparently he did not read with discrimination. He places too much emphasis on the change of the intestinal flora by the administration of lactose; he is, apparently, greatly impressed with the work of Metchnikoff on longevity, the result, perhaps, of an early association between the two men. His discussion of the interrelationship of the glands of internal secretion is too complicated and too vague to do a lay reader any good, especially such advice as the closing note of one chapter in which he admonishes the reader to take good care of his gland of life, that is to say, his adrenal cortex. How the absorbed reader is to accomplish this feat does not appear. The book is extensively documented and most if not all of the references are to recognized authorities, but the conclusions and the applications of the work of these research workers is confused, inconclusive and inaccurate. While the book contains much good advice and a great deal of information which might be of considerable value, it is not a work which arouses enthusiasm.

Wissenschaftliche Forschungsberichte. Naturwissenschaftliche Reihe. Herausgegeben von Dr. Raphael Ed. Liesegang, Frankfurt a. M. Band XLVI: Virus und Viruskrankheiten bei Menschen, Tieren und Pflanzen: Biologische Einführung in die allgemeinen Forschungsergebnisse, praktischen Anwendungen und Arbeitsmethoden. Von Dr. med. Gustav Seiffert, Medizinalrat a. D., Planegg/München. Paper. Price, 16 marks. Pp. 221, with 7 illustrations. Dresden & Leipzig: Theodor Steinkopff, 1938.

In the first sixty-six pages of the book is a general discussion of the viruses, including among other things some of the recent work on the size of virus particles, chemical purification and immunologic considerations. The bulk of the book deals with virus diseases of man and animals. A small amount of space is given to diseases of plants and the virus-like forms such as the rickettsiae and bacteriophage. In concluding, a section is given on the methods used in the study of viruses. The book has definite value in acquainting the reader with some of the recent developments in this field, although it is too incomplete to serve as a reference guide to investigators.

The British Encyclopaedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects. Under the General Editorship of Sir Humphry Rolleston, Bt., G.C.V.O., M.D. Volume VII: Hyperchlorhydria to Leucorrhoea and Other Non-Haemorrhagic Vaginal Discharges. Cloth. Price, $12. Pp. 759, with 171 illustrations. London & Toronto: Butterworth & Co. (Publishers), Ltd., 1938.

Volume VII is one of the largest of those included in this new encyclopedia. It goes from "hyperchlorhydria" to "leukorrhea" and includes particularly important articles on such subjects as hypnotism, immunity, impotence, industrial accidents, infant feeding, insurance, diseases of the joints, labor, diseases of the larynx, and leprosy. Obviously, most important is the section on labor, which occupies more than 170 pages and thus constitutes a brief textbook of obstetrics. This book is as beautifully prepared and printed as are the other volumes of the series and presents adequately British points of view in relationship to the subjects discussed.

Social Service Department of the Mount Sinai Hospital of the City of New York: A Review 1927-1937. Paper. Pp. 80. New York, 1938.

"The first social worker in the Mount Sinai Hospital was appointed in 1906. In 1917 there was a staff of eighteen; in 1927 the staff consisted of forty persons; and in 1937 it has grown to a staff of fifty-four, including professional and clerical staff." The struggles during depression and the developments of social service work in the various hospital departments are explained in a popular manner. The whole constitutes a vivid picture of all the activities of one of the largest hospital social service departments in the country.

Diabetes Insipidus and the Neuro-Hormonal Control of Water Balance: A Contribution to the Structure and Function of the Hypothalamico-Hypophyseal System. By Charles Fisher, Ph.D., W. R. Ingram, Ph.D., and S. W. Ranson, Ph.D., M.D. Institute of Neurology, Northwestern University Medical School. Cloth. Price, $5. Pp. 212, with 71 illustrations. Ann Arbor, Michigan: Edwards Brothers, Inc., 1938.

This volume is excellent in every respect with the exception of the title "Diabetes Insipidus" which appears on the binding. The use of this title would imply that the book contained information regarding the clinical syndrome of diabetes insipidus and its treatment. As a matter of fact, it contains nothing of help to a practicing physician. It does, however, contain a complete review of knowledge regarding the pathogenesis of diabetes insipidus as determined by careful experimental investigations on animals. It is based on the superlative work performed in the Institute of Neurology, Northwestern University Medical School, and should be of interest to every experimental physiologist and to those students of disease who are interested in a fundamental approach to the problem.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Contracts: Salability of "Good Will" of Deceased Physician.—The defendant, on the death of her husband, a physician, sold to the plaintiff physician the practice and good will of her husband for $5,000, a note being given for the purchase price. After making three monthly payments on the note the plaintiff was unable to make any further payments, having lost considerable of the practice which the deceased physician had had. The plaintiff made an unsuccessful effort to get the defendant to reduce the amount of the note and then instituted suit to cancel it and to recover judgment for the three payments already made. The trial court gave judgment for the plaintiff, and the defendant appealed to the St. Louis court of appeals, Missouri.

The question before the court was whether the business and good will of the deceased physician constituted a valid consideration for the note. In *Ryman* v. *Kennedy*, 141 Ga. 75, 80 S. E. 551, the Supreme Court of Georgia dealt with a similar question which involved the sale of a deceased lawyer's business for $2,500 for which the purchaser had executed a promissory note. The maker of the note brought suit to cancel it and to recover all sums which had been paid on it, on the ground that the thing which the widow of the deceased lawyer attempted to sell was not a subject-matter of sale and that the note was therefore without consideration. The court, in ruling in favor of the maker of the note, used the following language:

> Fees earned but not collected by the testator prior to his death, and all choses in action belonging to the testator in connection with his law business at the time of his death, and pending claims which the party of the first part had made arrangements with other attorneys to handle, were expressly excluded from the sale, and nothing was left upon which the contract could operate. The professional skill of the testator as a lawyer entered into the contract of employment by his clients, and the possibility that after his death his clients would consent to the selection of other counsel by the executors or others is too remote a contingency to render the "good will" of the testator a subject-matter of sale.

In *Re Caldwell's Estate*, 107 Misc. 316, 176 N. Y. S. 425, the court held as follows:

> The business of a physician who specialized in x-ray pictures as an aid to physicians, and who had a high reputation in his specialized field, and had made many improvements and inventions in the art, had no "good will," transferable after death, and subject to transfer tax, since any good will was personal to the physician, and not to the place of business. . . .
>
> But after a man who has acquired a reputation for great skill or knowledge is dead, persons who would go to his office for the purpose of consulting him and availing themselves of his superior skill would not go there merely because the office was still open and occupied by another person, who had no reputation for superior knowledge or skill.

Again, in *Mandeville* v. *Harman*, 42 N. J. Eq. 185, 7 A. 37, the court, in discussing a question similar to that involved in the instant case, used the following language:

> Professional skill, experience and reputation are things which cannot be bought or sold. They constitute part of the individuality of the particular person, and die with him. There can be no doubt, I think, that if the complainant was the most distinguished physician of the city of Newark, and had by far the most lucrative practice in that city, and he should be so unfortunate as to die next month or next year, it would be impossible for his personal representative to sell his good-will or practice, as a thing of property, distinct from the office which he had occupied prior to his death, for any price. . . . The practice of a physician is a thing so purely personal, depending so absolutely on the confidence reposed in his personal skill and ability, that when he ceases to exist it necessarily ceases also, and after his death can have neither an intrinsic nor a market value. And, if the complainant should make sale of his practice in his life-time, it is manifest all the purchaser could possibly get would be immunity from competition with him, and perhaps his implied approval that the purchaser was fit to be his successor; but it would be impossible for him to transfer his professional skill and ability to his successor, or to induce anybody to believe that he had.

Much stress was laid by counsel for the defendant on the advantage enjoyed by the plaintiff in obtaining the same office quarters which had been occupied by the defendant's husband. But, said the court, where the good will of a business is based solely on the professional skill, personal ability, integrity, high standing, learning and acknowledged repute of the owner, then such good will is not dependent on any particular place or location. These qualities are not transmissible, and when the owner, who possesses these traits, dies, the qualities he possesses, the good will, is "gone with the wind." In giving such stress and prominence to the securing of the offices by the plaintiff which the defendant's husband occupied, the court opined that the defendant and her counsel overlooked the kernel of truth contained in certain lines, usually ascribed to Emerson, but which were tenaciously claimed by Elbert Hubbard, which ran as follows: "If a man write a better book, preach a better sermon, or make a better mouse-trap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door."

The judgment of the trial court for the plaintiff was therefore affirmed.—*Magee v. Pope (Mo.), 112. S. W. (2d) 891.*

Compensation of Physicians: Hospital Expenses Not Included in Physician's Fee.—The plaintiff, a physician, agreed with the defendant to undertake the antepartum care and the delivery of the defendant's wife for the sum of $150. After the services were terminated the defendant refused to pay the fee, and the physician instituted suit. The trial court gave judgment for the plaintiff, and the defendant appealed to the court of appeal of Louisiana, Orleans.

The defendant admitted having made a contract with the plaintiff but contended that the sum agreed on was indefinite in that it was between $125 and $150 and that it was to include hospitalization. The issue between the parties, said the court, was narrowed to the sum of $54 by the testimony and admission of counsel, since it was conceded that $96 was due to the plaintiff, the cost of hospitalization being $54. The probability, the court said, that the plaintiff included hospital expenses in naming a sum as the price of his professional services seems very remote. There was in the record the testimony of a physician, other than the plaintiff, to the effect that $150 was a very reasonable fee for obstetric services in connection with the delivery of a child, particularly the first child. Both this physician and the plaintiff testified that greater skill and care are required and more difficulty is to be expected in the case of a primipara, especially when the mother has reached the age of 29, as had the defendant's wife when the child was born. Their statement in this respect was borne out by the record, for the defendant's wife suffered very serious complications, which endangered her life and caused the death of her unborn child.

For the reasons assigned, the judgment of the trial court was affirmed.—*Cohen v. Wiggin (La.), 178 So. 270.*

Insurance, Accident: Varicose Veins in Relation to Death from Thrombosis Following Accident.—In an accident insurance policy issued by the defendant company to the insured, there was excluded from coverage any "accident, injury, disability, death or any other loss caused wholly or partly, directly or indirectly, by disease or bodily or mental infirmity or medical or surgical treatment therefor." On Nov. 7, 1935, the insured was injured in an automobile accident. His seventh and eighth ribs on the left side were broken at a point in line with the arm pit and he sustained a bruise on the inner side of the left thigh and a wound on the left knee. The insured was afflicted with varicose veins in the area of the bruised portion of the left leg. On the fifth day after the accident, the injured part of the left leg became inflamed and ice packs were applied. By November 19 the inflammation and soreness had subsided and the condition remained without much change until the death of the insured on November 22. The plaintiff, as beneficiary under the policy, brought suit to collect the benefits provided in it. The U. S. district court gave judgment for the plaintiff, and the defendant insurance company appealed to the U. S. circuit court of appeals, seventh circuit.

The insurance company contended that the death was caused wholly or partly by bodily infirmity. An autopsy disclosed the broken ribs and a consolidated area in the lower portion of the left lung which, according to the testimony of a medical witness, could be caused either by pneumonia or by a blood

clot. The first possible cause was rejected because of the absence of other symptoms which are present in pneumonia. In the bruised area of the left leg near the enlarged varicose vein there was found a blood clot, which was removed. "It was a rather slippery formation which filled the blood vein like a cast fills a mold." One end of the blood clot was tapered off in a smooth fashion and the other end terminated abruptly and showed rough edges, indicating that there may have been more of it at one time. One physician testified that an incomplete thrombus indicates that one end is missing and has been carried to a new location in the body and that in his opinion the cause of the death was a breaking off of a portion of this blood clot and its final lodgment in the lung. Three medical expert witnesses testified in the case. The conclusion of one was "I believe if the injury had not been there and that vein had not been damaged, the likelihood of the thrombus forming would have been very remote." Another testified "My opinion is that a varicose condition is predisposed to trauma and that injury may set up a thrombus in that leg." Another witness testified that a blood clot is formed in different ways, one being "an injury that damages the wall of the blood vessel." The attending physician testified that in his opinion the thrombus did not exist in the leg at the time of his first examination of the insured following the accident and that, in his opinion, "the bruise is a causative factor of the thrombus because a damaged blood vessel is cause one for blood clot formation."

There were two facts, the court said, which were significant and not disputed. First, there was no thrombus in the varicose vein or that area before the accident. Secondly, there was only a possibility of a thrombus occurring in the varicose vein in the absence of the injuries sustained. In short, the injury must have caused the thrombus to form in or near the varicose vein. While the bodily infirmity need not be the sole cause of the death to defeat recovery under the policy, the court pointed out, it is well settled that the "cause" as here used, either sole or partial, refers to something other than a disease or affliction rendered more serious by the consequences of the accident. If the accident brought about conditions from which death resulted, the fact that the insured was ill, aged or infirm, or had bodily or mental infirmities, would not bar recovery, provided the accident excited the bodily infirmity into activity and death resulted. If the infirmity alone would not have caused death, it cannot be said to have caused death when the immediate result was occasioned by an infirmity which became active only because of the accident. The circuit court of appeals concluded that the testimony was sufficient to support a verdict that the injury was the proximate and sole cause of the death. The judgment for the plaintiff was therefore affirmed.—*Scanlan v. Metropolitan Life Ins. Co., 93 F. (2d) 942.*

Vaccination: Term "Vaccination" Means Inoculation Against Smallpox.—The defendant was convicted of failing to cause his children to attend a public day school and appealed to the Supreme Judicial Court of Massachusetts.

In September 1935 each of the defendant's children had been permitted to enter the public day school on a certificate signed by a registered physician that the physical condition of the child was such that his health would be endangered by vaccination, such a certificate being required for admission to school of an unvaccinated child. The rules of the school committee required that an unvaccinated child must renew such a certificate every two months in order to remain in school. Such a requirement has been held lawful. *Spofford* v. *Carleton,* 238 Mass. 528, 131 N. E. 314. Shortly before Jan. 4, 1936, the school authorities notified the defendant to renew the certificates or have the children vaccinated. He did neither but continued to send the children to the public school. Each day, however, they were refused admission by the school authorities, because there was neither a renewed certificate nor vaccination.

The statutory obligation, said the court, to cause children to attend school involves an obligation to put them into condition to attend and cannot be escaped by neglect to qualify them for attendance. The burden of the argument for the defendant was that the words "vaccinated" and "unvaccinated" do not convey the idea of inoculation against smallpox as distinguished from other diseases and that therefore the statute requiring vaccination as a condition precedent to school attendance was too vague for enforcement. The word "vaccination" was originally used to describe, the court said, the method discovered by Jenner late in the eighteenth century of inoculating with cowpox for the purpose of procuring immunity from smallpox. In the second volume of General Laws of Massachusetts, published in 1823, the earliest statute for compulsory inoculation "with the cowpox," enacted March 6, 1810, was indexed under the word "vaccination." In 1855 a law was enacted which required that all children should be "vaccinated" before attaining the age of 2 years and before being admitted to the public schools. In the statutes of Massachusetts, the court said, and even in common speech, the word "vaccinated," without explanation or qualification, means inoculated against smallpox. The language of the statute was therefore not vague but clear. The judgment of conviction was affirmed.—*Commonwealth v. Childs (Mass.), 12 N. E. (2d) 814.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Washington, D. C., Oct. 9-14. Dr. William P. Wherry, 107 South 17th St., Omaha, Executive Secretary.

American Association for the Study of Goiter, Washington, D. C., Sept. 12-14. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.

American Association for the Study of Neoplastic Diseases, Washington, D.C., Sept. 8-10. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, White Sulphur Springs, W. Va., Sept. 22-24. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Association of Railway Surgeons, Chicago, Sept. 19-21. Dr. Daniel B. Moss, 547 W. Jackson Blvd., Chicago, Secretary.

American College of Surgeons, New York, Oct. 17-21. Dr. George W. Crile, 40 East Erie Street, Chicago, Chairman, Board of Regents.

American Congress of Physical Therapy, Chicago, Sept. 12-15. Dr. Richard Kovacs, 1100 Park Ave., New York, Secretary.

American Hospital Association, Dallas, Texas., Sept. 26-30. Dr. Bert W. Caldwell, 18 East Division St., Chicago, Executive Secretary.

American Roentgen Ray Society, Atlantic City, N. J., Sept. 20-23. Dr. Carleton B. Peirce, University Hospital, Ann Arbor, Mich., Secretary.

Associated Anesthetists of the United States and Canada, New York, Oct. 17-21. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary General.

Association of Military Surgeons of the United States, Rochester, Minn., Oct. 13-15. Dr. H. L. Gilchrist, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Minneapolis, Oct. 6-8. Dr. William F. Mengert, University Hospitals, Iowa City, Secretary.

Clinical Orthopedic Society, Nashville, Tenn., and Birmingham, Ala., Oct. 7-8. Dr. H. Earle Conwell, 215 Medical Arts Bldg., Birmingham, Ala., Secretary.

Colorado State Medical Society, Estes Park, Sept. 7-10. Mr. Harvey T. Sethman, 537 Republic Bldg., Denver, Executive Secretary.

Delaware, Medical Society of, Dover, Oct. 10-12. Dr. Allan V. Gilliland, Smyrna, Secretary.

Idaho State Medical Association, Sun Valley, Sept. 6-10. Dr. Harold W. Stone, 105 North Eighth St., Boise, Secretary.

Indiana State Medical Association, Indianapolis, Oct. 4-6. Mr. Thomas A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Kentucky State Medical Association, Louisville, Oct. 3-6. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.

Michigan State Medical Society, Detroit, Sept. 19-22. Dr. L. Fernald Foster, 311 Center Ave., Bay City, Secretary.

Mississippi Valley Medical Society, Hannibal, Mo., Sept. 28-30. Dr. Harold Swanberg, 510 Main St., Quincy, Ill., Secretary.

Nevada State Medical Association, Reno, Sept. 23-24. Dr. Horace J. Brown, 120 N. Virginia St., Reno, Secretary.

Northern Minnesota Medical Association, Crookston, Aug. 29-30. Dr. J. F. Norman, Crookston, Secretary.

Pacific Association of Railway Surgeons, Los Angeles, Oct. 7-8. Dr. W. T. Cummins, Southern Pacific General Hospital, San Francisco, Secretary.

Pennsylvania, Medical Society of the State of, Scranton, Oct. 3-6. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh, Secretary.

Society of American Bacteriologists, San Francisco, Aug. 30-Sept. 1. Dr. I. L. Baldwin, College of Agriculture, University of Wisconsin, Madison, Wis., Secretary.

Utah State Medical Association, Ogden, Sept. 1-3. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Vermont State Medical Society, Burlington, Oct. 6-7. Dr. B. F. Cook, 154 Bellevue Ave., Rutland, Secretary.

Virginia, Medical Society of, Danville, Oct. 4-6. Miss Agnes V. Edwards, 1200 East Clay St., Richmond, Secretary.

Washington State Medical Association, Bellingham, Aug. 29-31. Dr. V. W. Spickard, 1303 Fourth Ave., Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 13-16. Mr. J. G. Crownhart, 119 East Washington Ave., Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1928 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

8: 1-60 (July) 1938

Surgery of Biliary Passages, with Special Reference to Hazards and Their Management. J. W. Means and C. J. Delor, Columbus, Ohio.—p. 1.
Head Injuries. C. H. Moore, Birmingham.—p. 7.
Diagnosis and Treatment of Tumors of the Breast. J. O. Lisenby, Atmore.—p. 12.

American Journal of Cancer, New York

33: 331-498 (July) 1938

*Carcinosarcoma. O. Saphir and A. Vass, Chicago.—p. 331.
Significance of Cell Type in Cervical Cancer. D. G. Morton, San Francisco.—p. 362.
Unusual Occurrence of High Incidence of Spontaneous Mammary Tumors in the Albany Strain of Rats. W. R. Bryan, G. H. Klinck Jr. and J. M. Wolfe, Albany, N. Y.—p. 370.
Two Spontaneous Uterine Tumors in Rabbit: Hormone Investigation. J. T. Witherspoon, Indianapolis.—p. 389.
Neoplasm Studies: IV. Clasmatosis in Melanoblast. C. G. Grand, New York.—p. 394.
Distribution of Lead in the Cat After Intravenous Injection of Colloidal Lead Preparation and Effect of Irradiation on This Distribution. B. L. Crawford, H. L. Stewart, C. E. Willoughby and F. L. Smith 2d, Philadelphia.—p. 401.
Anterior Pituitary Gland in Tumor-Bearing Rats. J. Heiman, New York.—p. 423.
Culpability for Delay in Treatment of Cancer. G. T. Pack and J. S. Gallo, Paterson, N. J.—p. 443.

Carcinosarcoma.—Saphir and Vass believe that most of the so-called carcinosarcomas are neither collision nor combination tumors but most commonly are primary carcinomas. The individual cells either show what has been called morphologic variation or have been distorted by chronic productive inflammatory changes within or close to the tumor. In some instances a primary sarcoma had invaded nonmalignant epithelial structures forming inclusions which led to the erroneous diagnosis of carcinosarcoma. Occasionally a so-called carcinosarcoma could be interpreted as a primary carcinoma which had invaded a benign tumor of the connective tissue. A number of carcinosarcomas reported in the literature can be interpreted on the basis of morphologic cellular variations. Transitional cell carcinomas, because of the fact that some of the tumor cells are spindle shaped, are sometimes erroneously referred to as carcinosarcomas, particularly in tumors of the larynx, lungs, esophagus, bladder and urethra. A number of other reported carcinosarcomas are seemingly primary carcinomas complicated by chronic productive inflammatory changes. Malignant tumors, when altered by inflammation, tend to assume indifferent structures in which most of the original features are lost and from which it is usually hazardous to attempt to reach any conclusion regarding histogenesis. Inflammatory changes are most marked in those organs exhibiting cyclic changes, such as the uterus, breast and thyroid; conversely, those organs are more commonly the site of these tumors. Chronic inflammatory changes with fibrosis and many lymphocytes may suggest a tumor of the connective tissue or occasionally a lymphosarcomatous element in primary carcinomas. Chronic productive inflammatory changes are not necessarily confined to "carcinosarcomas" but are present in many malignant tumors. The inflammation seen in the latter, however, is more commonly acute or chronic exudative in character rather than of a long-standing, chronic productive type, such as is almost invariably seen in "carcinosarcomas," particularly in the linitis plastica type of carcinoma. Because of the occasional difficulties in differentiating malignant carcinomatous cells from the cells of young benign tumors of the connective tissue, and because of the presence of giant cells in some of these instances, the cells of tumors of the connective tissue were interpreted as portions of a sarcoma. Because of the pressure of the fibers of tumors of the benign connective tissue the carcinoma cells secondarily become altered, are compressed and resemble sarcoma cells. Close inspection of the histologic pictures accompanying the case reports invariably lead one to believe in the carcinomatous nature of these cells.

American Journal of Ophthalmology, St. Louis

21: 723-842 (July) 1938

Filter-Passing Agent as Cause of Endophthalmitis. J. S. Friedenwald and Clara M. McKee, Baltimore.—p. 723.
Effects of Sulfanilamide as Determined in the Eyes of Rabbits. V. C. Rambo, Boston.—p. 739.
Irradiation of the Eye and Protective Devices. M. Cutler, H. L. Jaffe and A. Grossman, Chicago.—p. 747.
Water Content and Solids of Cataractous and Sclerosed Human Lenses. P. W. Salit, Iowa City.—p. 755.
*Sulfanilamide in Gonorrheal Ophthalmia: Preliminary Report. L. J. Fernández and R. F. Fernández, San Juan, Puerto Rico.—p. 763.
Retinal Changes in Hypertensive Toxemia of Pregnancy: Report of Forty-Seven Cases. J. F. Schultz and C. S. O'Brien, Iowa City.—p. 767.
Contact Lenses with Spheric Optic and Aspheric Haptic Part. F. Nelson, Colorado Springs, Colo.—p. 775.

Sulfanilamide in Gonorrheal Ophthalmia.—The Fernándezes used sulfanilamide in the treatment of eight adult cases of gonorrheal ophthalmia. The diagnosis was established by the clinical picture and the presence of gonococci in the exudate stained by Gram's method. All the patients were treated in the dispensary without hospitalization. A daily dose of 2.6 Gm. was regularly employed during the first three days, divided into four doses of 0.65 Gm. • On the fourth day a daily dose of 1.95 Gm. was given, 0.65 Gm. being administered three times a day. All patients recovered in a spectacular manner and in a shorter period than that required by other accepted forms of treatment. The results obtained warrant the judicious use of sulfanilamide in all cases of gonorrheal ophthalmia in adults whenever there is no serious contraindication. Smaller doses and special precautions must be used for patients with renal insufficiency, because the excretion of sulfanilamide is slow and in such patients would tend toward accumulation of the drug in the blood.

Annals of Internal Medicine, Lancaster, Pa.

11: 2079-2340 (June) 1938

Mistaking Other Diseases for Acute Coronary Thrombosis. J. B. Herrick, Chicago.—p. 2079.
Infarction of the Heart: II. Symptomatology of Acute Attack. W. B. Bean, Cincinnati.—p. 2086.
Electrocardiographic Studies in Clinical and Experimental Pulmonary Embolization. W. S. Love Jr., G. W. Brugler and N. Winslow, Baltimore.—p. 2109.
Subacute Bacterial Endocarditis Following Removal of Teeth or Tonsils. L. Feldman and I. M. Trace, Chicago.—p. 2124.
Myocardosis: Plea for Early Recognition of Coronary Artery Disease. A. E. Parsonnet, Newark, N. J.—p. 2133.
*Physiologic Effects of Extensive Sympathectomy for Essential Hypertension: Further Observations. E. V. Allen and A. W. Adson, Rochester, Minn.—p. 2151.
Gastric Lesions Associated with Pernicious Anemia. R. N. Washburn and H. M. Rozendaal, Rochester, Minn.—p. 2172.
*Tuberculosis in Medical and Nursing Hospital Personnel. J. A. Myers, B. Trach, H. S. Diehl and Ruth E. Boynton, Minneapolis.—p. 2181.
Acid-Base Water Balance. E. C. Mason and A. A. Hellbaum, Oklahoma City.—p. 2206.
The Dementia Praecox Problem. G. W. Dishong, Omaha.—p. 2214.
Rheumatic Erythemas: Critical Survey. H. Keil, New York.—p. 2223.

Sympathectomy for Hypertension.—Allen and Adson state that 311 operations have been performed on 156 patients by neurosurgeons at the Mayo Clinic without an operative death. Information relative to blood pressure and general health following postoperative dismissal from the hospital has been secured in 131 instances. Seven patients have died subsequent to operation but not as a result of it. Cerebral vascular accidents occurred in two patients. Decrease in the blood pressure and increase in the rate of the pulse when the patient changes from the recumbent to the upright position occurs commonly following operation. Both orthostatic hypotension and orthostatic tachycardia disappear at variable times after operation, regardless of the effect of operation on the blood pressure. The percentage of patients relieved (amelioration or complete dis-

appearance) of headache, when the effects of operation on the blood pressure were good, fair or were recorded as failure or temporary, were 100, 80 and 76 respectively. Nervousness was relieved after operation when the effects of operation on blood pressure were good, fair or poor respectively in 80, 66 and 67 per cent of the cases. The percentage of patients relieved of nonanginal pain in the left side of the thorax after operation, when the effects of operation on the blood pressure were good, fair or poor were 90, 75 and 60 respectively. The surgical procedure frequently failed to relieve such symptoms as fatigue and dyspnea with exertion. Both dyspnea and fatigue with exertion tend to disappear as the time after operation increases. Since removal of the first and second lumbar ganglions interrupts the sympathetic pathways to the lower extremities, the function of sweating of the lower extremities is eliminated. When operation produces good results on blood pressure, T waves that originally were inverted in the electrocardiogram may become upright and the transverse diameter of the heart, demonstrated on roentgenograms, may decrease. Tachycardia occurs commonly when the patient stands or exerts himself after the operation but this reaction gradually disappears. Following the operation the feet are warm and dry. If the blood pressure has been significantly decreased by operation the hands may be cold, apparently owing to vasoconstriction in these parts. A few patients mentioned an area of numbness, variable in extent in different cases. Disturbances of intestinal function (periods of from three to four bowel movements daily, with stools of soft consistency, alternated with periods of normal bowel movements) were noted in a number of instances. In many instances constipation was relieved. Flatulence or other evidence of disturbed motor activity of the gastrointestinal tract were uniformly absent. The sexual function of women is not impaired. Dysmenorrhea may be relieved. Menstruation is not influenced. Fertility is not affected apparently, although the response of the blood pressure to pregnancy is variable. Avoidance of pregnancy seems advisable ordinarily. Usually libido and potentia coeundi of the male are not impaired. Men may be sterile but are not certainly so. The effects of the operation on blood pressure are not uniform. They vary from poor to excellent. No infallible method of selecting patients for operation is available. As a result of their experience with extensive sympathectomy for essential hypertension, the authors believe that it is advisable to operate on more patients who have mild hypertension and on fewer patients who have severe hypertension.

Tuberculosis in Hospital Personnel.—According to Myers and his colleagues, since 1929 entering students in three Minneapolis schools of nursing and one school of education have had the tuberculin test administered. Of all the students entering these schools from 1929 to 1934 an average of approximately 23 per cent have reacted positively on admission. The incidence of positive reactors among the probationers has definitely decreased in the more recent years of the study. All students in the schools of nursing who react negatively to the tuberculin test are retested every six months as long as they remain negative. In each of the four schools the incidence of positive reactors definitely increased before graduation. Primary tuberculous complexes developing among student nurses, as manifested by the positive tuberculin reaction, were sometimes traced to other members of the hospital personnel. Therefore it is recommended that all persons employed in the hospital regardless of their capacity should have adequate examinations for tuberculosis. Most frequently primary complexes were traced to patients who had communicable pulmonary tuberculosis. Every patient entering a hospital, regardless of the admitting diagnosis, should be examined for pulmonary tuberculosis in communicable form. When persons are found to have communicable pulmonary tuberculosis coexisting with the condition for which they entered the hospital, it is recommended that they be isolated in the institution and treated for both conditions. In this way the hospital environment can soon be made safe from the standpoint of contracting tuberculosis. When such a program is in effect, members of the personnel should not show any higher incidence of positive tuberculin reactions or of clinical disease than persons in the general population employed elsewhere. Every member of the hospital personnel who reacts positively to the tuberculin test on employment or subsequently becomes a positive reactor has developed the primary tuberculous complex. In a small percentage, the roentgenogram has aided in determining the location of parts of the primary complexes. The safest procedure from the standpoint of the student nurse is to keep her from coming in contact with tuberculous patients while in training. This can be done with no particular loss to her future efficiency as a nurse. Only graduate nurses should be employed in tuberculosis services, both in hospitals and in sanatoriums, and such nurses should take graduate training in the fundamentals of tuberculosis before engaging in the active care of patients.

Archives of Ophthalmology, Chicago

20: 1-174 (July) 1938

Cataract Operations in the Prehistoric Age. K. C. Dutt, Calcutta, India.—p. 1.
*Problem of Rickettsias in Trachoma. P. Thygeson, New York.—p. 16.
Conjunctivitis Associated with Infection by Streptococcus Viridans: Clinical and Bacteriologic Observations in an Epidemic. A. R. Berger, D. H. Goldstein, C. McEwen and Rose C. Alexander, New York.—p. 19.
Influence of Vitamins and Dinitrophenol on Production of Experimental Cataract. M. L. Tainter and W. E. Borley, San Francisco.—p. 30.
Absorption of Visible Light by Refractive Media of the Human Eye. E. Ludvigh and E. F. McCarthy, Boston.—p. 37.
Association of Annular Band of Pigment on Posterior Capsule of Lens with a Krukenberg Spindle. W. Zentmayer, Philadelphia.—p. 52.
Testing Fitness for Night Flying: Visual Acuity. C. E. Ferree and G. Rand, Baltimore.—p. 58.
Biochemistry of the Lens: XI. Effect of Galactose on Permeability of Capsule of the Lens. J. Bellows and L. Rosner, Chicago.—p. 80.
Vertical Prism Values in Commonly Used Bifocal Lenses. S. L. Olsho, Philadelphia.—p. 95.

Rickettsias in Trachoma.—Thygeson examined trachomatous tissues from Tunis, Brazil and the United States for the rickettsia-like bodies described by Busacca and by Cuénod and Nataf. No minute parasitic bodies other than the elementary and initial bodies of the epithelial cell inclusions of trachoma could be demonstrated. He believes that the formations which the latter observers described as occurring in large numbers in the trachoma follicles are not parasitic but in all probability cell granules and cytoplasmic débris.

Florida Medical Association Journal, Jacksonville

25: 1-52 (July) 1938

The Role of Imponderables in Surgery. J. M. T. Finney, Baltimore.—p. 11.
Protamine Zinc Insulin in Treatment of Diabetes Mellitus. L. Limbaugh and K. Hanson, Jacksonville.—p. 21.
Squint. T. Gwathmey, Orlando.—p. 25.
Old Compression Fractures of the Spine. J. R. Boling, Tampa.—p. 27.
Abnormal Bleeding in the Middle-Aged Woman. C. J. Collins, Orlando.—p. 29.

Johns Hopkins Hospital Bulletin, Baltimore

63: 1-58 (July) 1938

Chemistry of Anaerobic Muscular Contraction. E. Lundsgaard, Copenhagen, Denmark.—p. 1.
Metabolism of Aerobic Working Muscles. E. Lundsgaard, Copenhagen, Denmark.—p. 15.
*Effect of Hyperthyroidism on Metabolism of Vitamin C. R. A. Lewis, Baltimore.—p. 31.
*Urinary Changes Due to Sulfanilamide Administration. Margaret B. Strauss and H. Southworth, Baltimore.—p. 41.
Pellagra Treated with Nicotinic Acid: Two Cases. R. France, R. D. Bates Jr., W. H. Barker and E. Matthews, Baltimore.—p. 46.

Hyperthyroidism and Vitamin C.—Lewis determined the urinary excretion of ascorbic acid before and after subtotal thyroidectomy in five hyperthyroid patients on a constant diet. In all the patients the amount of ascorbic acid excreted before operation was far less than normal. Following thyroidectomy the excretion of ascorbic acid increased in all the patients, reaching a normal value in four of the five patients studied. In four of the five patients the urinary excretion of ascorbic acid before thyroidectomy was similar to that observed in scurvy.

Urinary Changes Due to Sulfanilamide.—Strauss and Southworth observed that the administration (to three normal subjects) of sulfanilamide was accompanied by a decrease in the carbon dioxide combining capacity of the plasma, a definite diuresis and an increase in the renal excretion of sodium and potassium. Two dogs showed slight losses of base through renal excretion but not enough to alter the carbon dioxide combining capacity of the plasma even though they received larger doses of sulfanilamide per kilogram of body weight than did the human subjects.

Journal-Lancet, Minneapolis

58: 305-340 (July) 1938

Strangulated Hernia Reduced En Masse. W. D. White, Minneapolis.—p. 325.

Bronchoscopy as an Aid to the General Practitioner. H. D. Harlowe, Virginia, Minn.—p. 327.

The Student Health Problem of Appendicitis: Report of 1,303 Cases at Student Infirmary and Wisconsin General Hospital. E. R. Schmidt and F. G. Joachim, Madison, Wis.—p. 329.

Dry Eyes: Effect of Deficient Lacrimation. C. W. Rucker, Rochester, Minn.—p. 331.

Use of Fluoroscope in Examination of College Students. Ruth Elaine Taylor, Chicago.—p. 333.

Convulsions in Infancy and Early Childhood. O. C. Gaebe, New Salem, N. D.—p. 335.

Journal of Pediatrics, St. Louis

13: 1-156 (July) 1938

Early Lesions of Poliomyelitis After Intranasal Inoculation, with Comments on Their Relationship to Early Clinical Manifestations and to Nonparalytic Cases. H. K. Faber, San Francisco.—p. 10.

Future of Chemoprophylaxis as a Measure for Practical Control of Poliomyelitis. E. W. Schultz, Stanford University, Calif.—p. 38.

Persistent Anosmia Following Zinc Sulfate Nasal Spraying. F. F. Tisdall, A. Brown and R. D. Defries, Toronto.—p. 60.

*Acute Anterior Poliomyelitis Following Tonsillectomy and Adenoidectomy, with Special Reference to Bulbar Form. R. C. Eley and C. G. Flake, Boston.—p. 63.

Construction of Emergency Respirator for Use in Treating Respiratory Failure in Infantile Paralysis. P. Drinker and E. L. Roy, Boston.—p. 71.

Mental Hygiene in an Orthopedic Hospital. J. D. M. Griffin, W. A. Hawke and W. W. Barraclough, Toronto.—p. 75.

*Drugs Transmitted Through Breast Milk: II. Barbiturates. R. M. Tyson, E. A. Shrader and H. H. Perlman, Philadelphia.—p. 86.

*Id.: III. Bromides. R. M. Tyson, E. A. Shrader and H. H. Perlman, Philadelphia.—p. 91.

Erythema Annulare Rheumaticum: Clinical Significance in Rheumatic States of Childhood. H. Abramson and A. M. Tunick, New York.—p. 94.

Poliomyelitis Following Tonsillectomy.—The fact that the bulbar form of acute anterior poliomyelitis has been reported following recent tonsillectomy and adenoidectomy has suggested that this procedure might in some manner influence the entrance of the virus. A study of 418 consecutive patients with acute poliomyelitis admitted to the medical wards of the Infants' and the Children's hospitals of Boston adds further evidence as to this possibility and strongly suggests that in those instances in which the operation is of an elective nature it may be advisable to postpone it when poliomyelitis is prevalent. Eley and Flake offer the following information in support of this statement. Of 287 cases of spinal poliomyelitis there were only eight patients with a history of a recent tonsillectomy and adenoidectomy. Of the eight patients, only three acquired it between the seventh and the eighteenth day (the commonly accepted incubation period of poliomyelitis) after the operative procedure. Of 131 patients with bulbar poliomyelitis, seventeen had had this operation performed within twenty days prior to the onset of their illness. Fifteen of the seventeen patients acquired the disease within the usual incubation period. Statistical computations demonstrate that the occurrence of this number of cases within the given period cannot be attributed to chance nor can it be attributed to the usual frequency of poliomyelitis. The clinical observations suggest that, if the patient is harboring the virus at the time of the operation, traumatization of the tissues may enable it to gain entrance to the central nervous system by way of the lymphatic system or the blood stream or perhaps by direct neural extension. The fact that one of the patients acquired bulbar poliomyelitis following adenoidectomy without tonsillectomy would indicate that it is not necessarily the latter operation which enables the virus to gain entrance to the central nervous system.

Drugs Transmitted Through Breast Milk.—Tyson and his associates studied the transmission of barbiturates and bromides by breast milk in lactating mothers. A total of 164 samples (15 cc.) of breast milk was collected from mothers receiving barbiturates. Chemical analyses of individual specimens of milk after administration of barbiturates in half grain (0.03 Gm.) doses at stated intervals, although amounting in the aggregate to 2 grains (0.13 Gm.) in a day, do not show as high a percentage of positive reactions as do similar specimens after the administration of 1½ grains (0.1 Gm.) at bedtime. Thus, concentrated doses seem to have more effect on transmission than do cumulative doses. In only two of the forty-one cases was there any clinical effect of the drug on the child, and thus there is the possibility that the child may be affected by the breast milk after medication of the mother with barbiturates. A total of thirty-eight specimens of breast milk was analyzed after the administration of bromide and thirty-seven gave positive results after chemical analysis for the drug. Clinical evidence of transmission was manifested in the child to a marked extent in four cases, although in every case there was a marked diminution in the irritability of the child as well as of the mother.

Pennsylvania Medical Journal, Harrisburg

41: 879-968 (July) 1938

Nervous Relationships of Gastrointestinal Tract. F. Kennedy, New York.—p. 879.

Common Proctologic Disorders in Children. C. C. Mechling, Pittsburgh.—p. 886.

Few Conditions Frequently Overlooked in Differential Surgical Diagnosis of Abdomen. S. J. Waterworth, Clearfield.—p. 889.

Intranasal Approach for Removal of Certain Orbital Tumors. E. Stieren, Pittsburgh.—p. 892.

Intermittent Claudication as an Early Symptom of Cardiovascular Disease. W. D. Stroud and N. P. Shumway, Philadelphia.—p. 894.

Diagnostic Value of Air Pyelography. B. Hughes, Philadelphia.—p. 897.

Seborrheic Dermatitis. R. J. Rickloff, Erie.—p. 899.

Silent Renal Pathology. A. Randall, Philadelphia.—p. 903.

Status Lymphaticus: Diagnosis and Treatment Preliminary to Surgical Procedures. E. H. Campbell, Philadelphia.—p. 907.

Some of the Common Defects Found by the Public School Medical Inspector. J. J. Lonsdorf Jr., Scranton.—p. 911.

Facilities in Pennsylvania for Juvenile Mental Cases. W. C. Sandy, Harrisburg.—p. 913.

Brain Abscess. S. S. Allen, Pittsburgh.—p. 917.

*Epidemic Myalgia or Pleurodynia. R. R. Macdonald, Pittsburgh.—p. 919.

Necessity and Method of Establishing Residencies in Obstetrics. R. E. Nicodemus, Danville.—p. 920.

Epidemic Myalgia or Pleurodynia.—Macdonald presents the clinical and laboratory observations in seventy cases of epidemic myalgia in children, although persons of all ages were attacked during the epidemic. Diagnosis depends on the character of the pain and fever and is extremely difficult except in the presence of an epidemic. In children the disease may be easily confused with acute appendicitis, but the absence of localized pain and tenderness and the relatively low leukocyte count may aid in the diagnosis of epidemic myalgia. In myalgia there is in addition no localized abdominal muscular spasm. Differentiation from pleurisy is difficult in the patients complaining of pain of the chest. In these cases, however, a pleural friction rub cannot be demonstrated. Treatment of the attack is symptomatic. The patients recover rapidly if not treated, but salicylates may be of value in allaying pain. There are no records of death from the disease. Epidemic myalgia, like acute anterior poliomyelitis, occurs during the summer. Accompanying the present epidemic of myalgia the same community suffered an epidemic of benign lymphocytic meningitis.

New England Journal of Medicine, Boston

218: 1087-1124 (June 30) 1938

Relation of the Physician to Industry. Emma Sanborn Tousant, Boston.—p. 1087.

Three Types of Meckel's Diverticulum. T. F. Corriden, Northampton, Mass.—p. 1090.

Sulfanilamide in Treatment of Gonorrhea in the Female. B. C. Grodberg and E. L. Carey, Boston.—p. 1092.

Public Health Reports, Washington, D. C.

53: 1065-1118 (July 1) 1938

*Metal Fume Fever and Its Prevention. R. R. Sayers.—p. 1080.

Studies on Trichinosis: VI. Epidemiologic Aspects of Trichinosis in the United States as Indicated by an Examination of 1,000 Diaphragms for Trichinae. M. C. Hall.—p. 1086.

Metal Fume Fever and Its Prevention.—The metal fumes which produce fever are most commonly encountered in industries in which metal, such as zinc, is heated in an oxidizing atmosphere to a temperature near its boiling point (zinc 930 C.); for example, in the founding of brass and the oxyacetylene welding of galvanized iron. They may also occur during the melting, stirring and casting of brass. Sayers avers that fumes also result from the fusing of manganese in the manufacture of steel, from cadmium in spelter works or during the melting

of cadmium ingots, from smelting and electrolytic recovery of zinc, from antimony in the printing trade and from the vulcanization of rubber. The metallic oxides commonly given off in the form of fumes or dust in welding processes may originate from several sources—from the materials welded, from the coatings of the surfaces being welded or cut, from the coatings of the electrodes used in arc welding or from the flux rods. Because of the temporary nature of the disease, and, since the patient recovers within a relatively short time, only symptomatic treatment is customary. Metal fume fever may be eliminated through the adoption of an adequate medical and engineering program. In order to control the toxic fumes at their source, operations giving rise to metal fumes should be carried on when practicable in airtight apparatus; that is, a closed process. The usual method, however, is to employ exhaust ventilation with hoods over the process producing the fume. The mechanical ventilation is generally more reliable and satisfactory. The ventilating system should be designed so that a current of clean air is drawn past the operator and away from him toward the work. Masks and respirators to be used for workers exposed to metal fumes should be specially constructed and adapted to the material used by such workers.

Rocky Mountain Medical Journal, Denver

35: 505-576 (July) 1938

Aviation Medicine. S. E. Brown, March Field, Calif.—p. 522.
The Changing Concept of Public Health. R. L. Cleere, Denver.—p. 525.
The Practical Approach to the Cancer Problem. C. F. Hegner, Denver.—p. 529.
Recent Developments in Plastic Surgery. D. W. Macomber, Denver.—p. 532.
Newer Aspects of Infant Feeding. W. W. Barber, Denver.—p. 537.
Short Wave Therapy in the Pelvis. J. R. Evans, Denver.—p. 543.

South Carolina Medical Assn. Journal, Greenville

34: 147-172 (June) 1938

Indications for Surgery in Lesions of the Heart and Pericardium. I. A. Bigger, Richmond, Va.—p. 147.
Pancreatic Hemorrhage Followed by Fistula. O. B. Mayer, Columbia.—p. 151.

Surgery, St. Louis

4: 1-160 (July) 1938

Relationship of Intervertebral Disk to Back Strain and Peripheral Pain (Sciatica). J. S. Barr, Boston.—p. 1.
Surgical Treatment of Low Back Pain. A. DeF. Smith, New York.—p. 13.
Relation of Fascia Lata to Mechanical Disabilities of the Spine. F. R. Ober, Boston.—p. 21.
Surgical Treatment of Affections of Lumbosacral and Sacro-Iliac Joints. J. I. Mitchell, Memphis, Tenn.—p. 33.
Function of Spleen in Retardation of Shock from Hemorrhage: Experimental Study. E. P. Lehman and C. V. Amole, University, Va.—p. 44.
Experimental Study of Operations Which Involve Exclusion of Pancreatic Secretion from Intestinal Tract, with Special Reference to Possible Effects on Protein and Fat Digestion and on Metabolism of Liver Cell. F. F. Boyce and Elizabeth M. McFetridge, New Orleans.—p. 51.
Effect of Ephedrine on Pancreatic Secretion: Method for the Management of Patients Having a Pancreatic Fistula. C. B. Craft, Minneapolis.—p. 64.
Recurrent Dislocation of Shoulder Joint: Evaluation of Nicola Operation. M. T. Horwitz and A. J. Davidson, Philadelphia.—p. 74.
Surgical Treatment of Stricture of the Rectum. J. deJ. Pemberton and L. K. Stalker, Rochester, Minn.—p. 81.
*Bile Salts in Treatment of Peptic Ulcer. G. S. Bergh, Minneapolis.—p. 84.
Carcinoma of Third Segment of Duodenum: Report of Case. L. N. Claiborn and W. G. H. Dobbs, New Haven, Conn.—p. 97.
Traumatic Fat Necrosis: Report of Case Involving the Buttock. M. B. Cooperman and D. R. Meranze, Philadelphia.—p. 103.
Chronic Hyperthyroidism: II. Diffuse Toxic Goiter. T. O. Young, Duluth, Minn.—p. 111.
*Use of Zinc Peroxide in Mouth Infections: Preliminary Report. J. P. Wintrup, Wilmington, Del.—p. 124.
Seymour Haden, Surgeon and Painter-Etcher. W. M. Millar, Cincinnati.—p. 132.

Bile Salts in Peptic Ulcer.—Bergh administered iron bile salts orally to thirty-two unselected patients with duodenal, gastric or gastrojejunal ulcer established by roentgenoscopic and roentgenographic examination. All patients were ambulant during treatment. The iron bile salts were given four times a day in doses of 0.65 Gm., with each meal and at bedtime. In a few cases in which the dose (2.6 Gm.) produced an undesirable catharsis the dose was cut to the limit of tolerance. Twenty-six patients, or 81.25 per cent, were definitely improved, while six patients were not improved. Many of the patients who had suffered from ulcer symptoms for years were highly gratified because of the improvement experienced. Ten patients experienced increased distress for periods of three or four days up to two weeks. This may have been due to a local irritative action of the bile salts. A week or ten days after starting the treatment, sometimes more and sometimes less, improvement usually became manifest and gradually progressed until many patients felt entirely well. They soon found that they could eat many foods which had previously caused them distress, and they were glad to return to a general diet. However, many patients still found that the ingestion of greasy or highly seasoned foods might be followed by some degree of discomfort. It also was possible for patients to resume work of a moderately strenuous nature, and some patients were capable of returning to heavy labor. X-ray evidence of healing came more slowly than the clinical improvement, and in the early follow-up examinations it was not unusual to find a niche still present, in spite of the fact that the patient was feeling well, was taking a general diet and had returned to work. Later, however, the niche diminished or vanished, giving x-ray evidence of healing in conformity with the clinical improvement.

Zinc Peroxide in Mouth Infections.—Wintrup used zinc peroxide in treating ten cases of acute Vincent's infection, eight cases of chronic Vincent's infection, twelve cases of acute gingivitis, three cases of suppurating periodontoclasia and two cases of radiation necrosis. Zinc peroxide is quite stable and comes not as a pure salt but contains from 45 to 50 per cent of zinc peroxide, from 35 to 40 per cent of zinc hydroxide and from 10 to 15 per cent of zinc carbonate. Only the "medicinal grade" should be used and it must be heated to 140 C. in quantities of not more than 500 Gm. for four hours, to effect sterilization, in accordance with the manufacturer's specifications. Zinc peroxide with 7.5 per cent of available oxygen, nearly as much as sodium perborate, loses its oxygen slowly. Therein lies its great virtue for the treatment of oral infections. Zinc peroxide has a p_H of 8.8 and remains stable over a long period, giving up its oxygen so slowly that great amounts of it can be utilized to permeate interstices, crypts and pockets, in which organisms associated with all types of gingivitis, pyorrhea, osteomyelitis and necrosis of the soft tissues abound. Further, the zinc oxide residue is bland and healing and this is an added desirable characteristic. Best results are obtained when the zinc peroxide is applied as a paste. Following application of local medication, zinc peroxide is used by the patient at home every three hours for the first twenty-four to forty-eight hours and then every four hours. It is recommended that the zinc compound be mixed with water to form a creamy paste. One-half teaspoonful for each application is sufficient. This paste is applied by the patient with his finger or on a sterile swab and massaged gently into the interproximal spaces between the teeth and along the gingival margin. The zinc peroxide thus is placed directly in contact with the tissues and remains there for a long time, giving off its oxygen. No effort should be made to rinse the mouth and, as the powder is slowly mixed with the saliva, the patient should expectorate this residue. Patients are seen every other day for further local treatment; the zinc peroxide is continued until complete healing has taken place, and then for another week as an added precaution.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

46: 341-394 (July) 1938

Post-Traumatic Pain Syndromes: Interpretation of Underlying Pathologic Physiology: Division I. W. K. Livingston, Portland, Ore.—p. 341.
Sarcoma Following Benign Bone Lesions. A. R. Kilgore and L. C. Abbott, San Francisco.—p. 348.
Acute Primary Auricular Neuralgia as Cause of Earache: Its Diagnosis, Etiology and Treatment, with Some Remarks on Sensory Supply of the Ear. M. A. Glaser, Los Angeles.—p. 355.
Differential Diagnosis of Jaundice: Division I. Laboratory Tests Useful in Distinction Between Surgical and Nonsurgical Conditions. K. E. Hynes and C. R. Jensen, Seattle.—p. 371.
Influence of Pentobarbital Sodium on Duration of Labor. D. N. Danforth and W. C. Danforth, Evanston, Ill.—p. 379.
Occiput Posterior Position: Its Incidence and Treatment in 1,000 Personally Conducted Labors. G. S. Beardsley, Eugene, Oregon.—p. 380.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Urology, London

10: 109-218 (June) 1938

Tuberculous Epididymitis. C. A. Wells.—p. 114.
Tests of Renal Function. C. P. Stewart.—p. 131.
Deposition of Uric Acid Crystals in Perirenal Capsule and Kidney Tissues. G. de Illyés.—p. 144.
Gonococcic Infection of Upper Urinary Tract. W. S. Mack and Christina B. Buchanan.—p. 150.

British Medical Journal, London

1: 1349-1406 (June 25) 1938

Clinical Aspects of Transmission of Effects of Nervous Impulses by Acetylcholine. F. R. Fraser.—p. 1349.
The Unconscious Mind and Medical Practice. E. Jones.—p. 1354.
Uterine Rupture Following Cesarean Section. C. E. B. Rickards.—p. 1359.
*Nervous Complications of Measles. A. C. E. Cole.—p. 1361.
Sulfanilamide Therapy in Meningococcic Meningitis: Report of Three Cases. T. C. Morton, V. S. Ewing and J. D. Ebsworth.—p. 1362.

Nervous Complications of Measles.—Cole points out that the pathologic changes of nervous complications of measles appear to be identical with those occurring in postvaccinial encephalitis and in the forms of encephalitis following other acute fevers (mumps and chickenpox). The clinical manifestations have been summarized by Ford (1928). He distinguishes six groups: (1) mild and transient diffuse cerebral symptoms, (2) multiple focal or diffuse lesions of the nervous system, (3) single focal cerebral lesions (aphasia or hemiplegia), (4) cerebellar syndromes of varying degrees of severity (generalized ataxia, intention tremor, loss of muscle tone, slow or scanning speech and nystagmus), (5) paraplegia and spinal cord syndromes and (6) toxic psychoses and papilledema. A case of the postfebrile variety of measles encephalitis is presented. There was no rash. The encephalitis occurred in a mother of two children after mild attacks of measles in the children. The condition began with multiple focal and diffuse lesions and later concentrated on the cerebellar functions. The sequels were minimal, affecting only cerebellar function, and were unaccompanied by mental defects or personality changes. The possible differential diagnosis of acute disseminated sclerosis was excluded by the mental symptoms in the acute attack and by the absence of any further development in over a year. Whether the illness followed an atypical attack of measles without the rash can be less certainly stated.

Edinburgh Medical Journal

45: 461-528 (July) 1938

Natural Chemical Stimulators. H. Dale.—p. 461.
Reaction of Urine in Disease and in Treatment. D. M. Lyon.—p. 481.
Debatable Tumors in Human and Animal Pathology: V. Giant Cell Tumor of Bone. E. K. Dawson, J. R. M. Innes and W. F. Harvey.—p. 491.
Effect of Reticulo-Endothelial Blockade on Natural Antibodies and Natural Immunity Reactions. S. Thomson.—p. 505.
Intrapleural Division of Adhesions in Pneumothorax Treatment of Pulmonary Tuberculosis (Internal Pneumolysis). B. M. Dick.—p. 518.

Journal of Mental Science, London

84: 451-588 (May-July) 1938

Neurogenesis and Development of "Synapses," with Particular Reference to Conditions in Lepidosiren Paradoxa. T. Jones.—p. 451.
Determinants of Physique. J. I. Cohen.—p. 495.
Mental Testing in Male Adolescent Delinquents. F. H. Taylor.—p. 513.
Treatment of Mental Disorders and Mental Deficiency in Continental Criminal Law. H. Mannheim.—p. 524.
*Estimation of Vitamin C Content of Urine of Fifty Patients Suffering from Psychoses. L. Minski and N. D. Constantine.—p. 541.
Enhancement of Physical and Mental Capacity Following Treatment of Chronic Infective Disease. H. F. Fenton.—p. 544.
Head Injuries and Mental Disorder. T. C. Graves.—p. 552.
Etiology of Confusional Syndrome and Use of T. A. B. Vaccine. D. N. Parfitt.—p. 563.
Six Months' Experience with Cardiazol Therapy. G. S. Nightingale.—p. 574.
Histamine and Insulin in Treatment of Schizophrenia and Other Mental Diseases. H. Hill.—p. 581.

Vitamin C in Urine in Psychoses.—Minski and Constantine estimated the vitamin C content of the urine in fifty patients after they had been hospitalized for some weeks, by which time the regular hospital diet would exclude any errors which might have been caused by underfeeding before admission to the hospital. The average daily output of the fifty patients was on the low side, being approximately 9.16 mg. of ascorbic acid in twenty-four hours, while the average excretion of ten members of the staff who were on comparable diets was 14.6 mg. No definite conclusions can be reached, but the weight of many of the patients was on the low side, and whether there is any relation between the weight of the body and the excretion of vitamin C is a matter for further investigation.

Lancet, London

1: 1373-1428 (June 18) 1938

Control of Infection in Children's Wards. R. H. Dobbs and R. Kempthorne.—p. 1373.
Secondary Carcinoma of Bone. F. Roberts.—p. 1378.
Blood Changes in Anxiety States. D. Hill and S. Taylor.—p. 1382.
Adult Scurvy Associated with Vitamin B_1 Deficiency. J. B. Young.—p. 1385.
*Blood Transfusion with Heparin. H. Knoll and O. Schürch.—p. 1387.
Biologic Effects of Synthetic Estrogenic Substance 4: 4'-Dihydroxy-α: β-Diethylstilbene. E. C. Dodds, W. Lawson and R. L. Noble.—p. 1389.
Massive Pneumonia, Type III, with Massive Collapse, Treated with 2-(p-Aminobenzenesulfonamido) Pyridine: Case. M. Telling and W. A. Oliver.—p. 1391.

Blood Transfusion with Heparin.—Knoll and Schürch investigated the possibility of simplifying the technic of transfusion by the use of heparin to such an extent that it could easily be carried out by a general practitioner without special apparatus and an experienced staff. To samples of 10 cc. of human blood, some in paraffined and some in unparaffined test tubes, 20, 30, 40, 60, 80 and 100 inhibiting units of heparin were added. After various periods the state of the blood was tested with a glass rod. The same blood without heparin was used for comparison. The time of coagulation was found to be increased approximately in proportion to the amount of heparin added. A series of transfusions was carried out in which the blood withdrawn in the Merke apparatus was treated with 1,000 inhibiting units of heparin per hundred cubic centimeters of blood, the heparin being diluted with saline solution to 20 cc., mixed and injected. All the transfusions of from 150 to 500 cc. of blood carried out in this manner, some with paraffined, others with unparaffined, Merke containers, were completely successful and free from complications. The sole advantage that this method has over the citrate method is that paraffined vessels can be dispensed with. Therefore the authors turned to the method of Hedenius (1937) of heparinizing the donor. They determined the coagulation time of their patients from fifteen to thirty minutes after the intravenous injection of increasing doses (measured by inhibiting units) of heparin, the doses being diluted with saline solution to 20 cc. in order to ensure a slow and regular injection taking about five minutes. Experiment showed that doses of 1,500 inhibiting units of heparin increased the coagulation time and this increase was almost doubled by using 20,000 units and about trebled by using 40,000 units. The maximal effect was attained from fifteen to thirty minutes after the injection; there was always a fall ninety minutes after the injection and after two and one-half hours normal values were again reached in every case. The increase of the coagulation time was small in comparison with that observed in vitro. Large doses of heparin must be used when the donor is being heparinized because lesser amounts will not delay the coagulation time sufficiently. In none of the transfusions were there any disturbances in the recipient, and in particular no increase in his coagulation time, so that this method would seem suitable when the recipient is subject to the likelihood of increased bleeding. The donor's blood will have an increased coagulation time for two hours after the withdrawal of blood and he should be careful during this time.

Journal of Oriental Medicine, Mukden, Manchoukuo

28: 85-102 (June) 1938. Partial Index

Statistical Investigations of the Physique of the Applicants for Recruits for Manchoukuo Army: Parts V to VIII. H. Kurihara.—p. 85.
Urease Reaction of Bacteria Causing Undulant Fever. M. Arai.—p. 89.
Clinical and Statistical Observations on 450 Cases of Erysipelas. M. Sawada.—p. 93.
Studies on Amylase Action of Pulmonal Tissue: I. Studies of Determination of Optimal Hydrogen Ion Concentration and Influences of Halogen Salts. T. Takano.—p. 95.
So-Called Lichen Scorbuticus. S. Yasui, H. Maehara, C. Kobayashi and Kuo Wen Kao.—p. 101.

Annales de Médecine, Paris

44: 5-84 (June) 1938

Dolichostenomelia. A.-B. Marfan.—p. 5.
Case of Visceral Panarteritis. G. Carrière.—p. 30.
*"Healthy Expectorators" of Tubercle Bacilli. F. Meersseman.—p. 50.
Hemorrhagic Aplastic Anemia Following Gold Therapy. M.-P. Weil, V. Oumansky and L. Langlois.—p. 78.

"Healthy Expectorators" of Tubercle Bacilli.—Meersseman reports the histories of two young men, aged 24, who had tubercle bacilli in the sputum although careful clinical and roentgenologic examinations always remained negative. The animal tests that were made with the tubercle bacilli detected in the two patients remained negative, but otherwise the bacilli had all the characteristics of the tubercle bacillus. The author thinks that although the detected organisms were true tubercle bacilli their virulence was low. The tubercle bacilli found in the third person whose history is reported produced tuberculous lesions in one of the two guinea pigs in which the suspected sputum was tested. The author further examined, by means of the Ziehl-Nielsen method, the sputums of eighty-four medical students who were free from radiologic and clinical signs of pulmonary tuberculosis. In nine of the students the sputum was found to contain bacilli that were resistant to acid and alcohol. Each of these nine suspected sputums were injected into two guinea pigs. Whereas in eight cases both guinea pigs gave negative results, in the ninth case one of the animals presented tuberculous lesions. The last-mentioned patient was kept under careful observation for three years but no signs of tuberculosis developed. The author further reports the results of investigations carried out on the sputums of eighty young soldiers who were free from clinical signs of tuberculosis. In this group again, one of the animals on which the sputums were tested showed tuberculous lesions. Observation of the patient from whom this sputum was derived proved that this was a convalescent carrier of tubercle bacilli. Later the author made a third series of systematic examinations on medical students and soldiers and he gives the clinical histories of the four who were discovered to be expectorators of tubercle bacilli. During the following year (1935) the author conducted a fourth series of investigations on sixty-five subjects who, on the basis of clinical and radiologic examinations, could be regarded as healthy. After citing some of the reports that other authors had published in the course of these years, he evaluates the different observations and opinions. He says that the detection of tubercle bacilli in the expectoration of apparently healthy subjects has given rise to two theories: (1) Either the apparently healthy subjects who expectorate the tubercle bacilli really have pulmonary tuberculosis, but in the form of lesions so small that they give rise neither to clinical nor to the roentgenologic aspects, or (2) it is an elimination of bacilli by a healthy pulmonary parenchyma without concomitant or consecutive tuberculous evolution. If the latter view is accepted, the origin of the bacilli remains to be explained. The author concludes that the phenomenon which is produced in the "healthy expectorators" represents in reality the first stage of pulmonary tuberculosis of the adult, which may or may not progress actively. From the point of view of the prophylaxis of tuberculosis the author says that "healthy expectorators" do not present a great danger.

Presse Médicale, Paris

46: 1049-1064 (July 2) 1938

*Vaccination by Means of Diphtherial Toxoid and Prophylaxis of Diphtheria. G. Ramon.—p. 1049.
New Conception of Mechanism of Death from Burns. L. Christophe.—p. 1054.

Prophylaxis of Diphtheria.—This report is dedicated to the fiftieth anniversary of the discovery of the diphtheric toxin by E. Roux and A. Yersin and to the passage of the French law (on June 2, 1938) which makes antidiphtherial vaccination with anatoxin obligatory. Ramon points out that fifteen years has elapsed since he first demonstrated that the diphtheric toxin of Roux and Yersin, by the simultaneous action of formaldehyde and heat, can be transformed into an absolutely inoffensive product, which retains its immunizing action. He discusses the method of vaccination; namely, the dose, number and spacing of the injections, also the method of combined vaccinations, which is based on the employment of a mixture of two or several anatoxic vaccines, for instance, of diphtherial and tetanic anatoxin or even of antityphoid vaccine and of diphtherial and tetanic anatoxins. He shows that these associated vaccinations offer the double advantage of realizing several immunizations at one time with an increased efficacy for each of them. Further he reviews the influence of vaccination with toxoid on the morbidity and mortality of diphtheria in France and in other countries, showing that wherever anatoxin vaccination has been widely employed the diphtherial morbidity and mortality have greatly decreased. Finally he discusses the principles of and the practical indications for toxoid vaccination in the individual and collective prophylaxis of diphtheria. Regarding the law which makes antidiphtherial vaccination obligatory in France, he says that in his opinion antidiphtheria vaccination should be employed during the second year of life. Three injections should be given at intervals of fifteen days. A first injection of renewal is made during the sixth year. Concerning the associated injections he says that, since there is hardly any individual who from childhood is not exposed to the risks of tetanus, it is advisable to employ a mixture of diphtheric and tetanic anatoxins. In this manner, antidiphtheric and antitetanic immunizations are achieved by one series of vaccinations.

Jahrbuch für Kinderheilkunde, Basel

151: 181-300 (May-June) 1938

*Nature and Appearance of Influenza in Nurslings. J. Geldrich.—p. 181.
New Methods in Treatment of Pneumonia in Nurslings. Tuscherer.—p. 224.
New Cases of Pellagra in Children and Its Nosologic Position Among Acropathic Diseases. E. Mayerhofer and B. Dragišić.—p. 242.
Sulfur Metabolism in Developing Organism. S. Blazsó.—p. 255.
Alkali Content and Development of Milk. F. Goldmann.—p. 263.
Functional Examination of Sympathetic Nervous System by Means of Epinephrine Electrocardiogram. A. Nádrai.—p. 274.
Interstitial Nephritis Complicated by Nephritic Changes. E. Schmid.—p. 284.

Influenza in Nurslings.—Geldrich regards influenza as a disease which is caused by an ultrafiltrable virus but says that this virus infection is in the majority of cases secondarily complicated by a bacterial infection. This accounts for the two stages that can be differentiated in the clinical course of the influenza. The primary stage is caused by the virus infection, whereas the secondary stage is the result of the accompanying bacterial infection. Simple uncomplicated influenza of nurslings appears under two forms, the abortive one and the ordinary one. The complications of influenza can be classified into mild and severe forms. On the basis of two case reports the author discusses the forms with mild complications and the forms that take a chronic course. From the forms that have an anatomic basis he differentiates those that are of a purely functional character. The vital functional disturbances of influenza in nurslings are toxicosis, cardiac weakness, gastric and intestinal disturbances, hepatic and renal insufficiency and finally the disturbances of the central nervous system. Regarding the toxicosis the author says that, although in the majority of cases it is of bacterial origin, it may occasionally be elicited by the primary virus infection. Discussing the cardiac weakness, the author differentiates the fulminating from the ordinary acute form. The fulminating form of cardiac weakness represents an almost complete collapse of heart and circulation, in which the usual cardiac stimulants fail and only the intravenous injection of strophanthin may still be of help. The acute form of cardiac weakness takes a less rapid course so that the organism usually still has time to develop its reserve powers and to mobilize its compensatory mechanism. In his evaluation of the gastrointestinal disturbances that occur during influenza in nurslings, the author says that in some of the milder cases the retardation in the intestinal activity is due to a temporary accumulation of gas in the intestinal tract or to an increased bacteriologic decomposition. These disorders are as a rule easily influenced. The severe forms, however, which are usually refractory to therapeutic measures, represent a more or less complete intestinal paralysis and frequently are a sign of imminent death.

Pediatria, Naples

46: 477-570 (June 1) 1938. Partial Index

Epidemiologic, Clinical and Statistical Study of Benign Scarlet Fever. F. Tecilazic.—p. 477.

*Treatment of Epidemic Cerebrospinal Meningitis with Serum Prepared with Strains of Meningococcus from City of Epidemic Focus. A. Naccari.—p. 509.

Proposed Modification of "B" Alimentary Mixture (M. A. B.) G. Daglia.—p. 515.

Primary Tumor of Mediastinum in Child, Aged 7 Years. Santyan y Velasco Suello.—p. 542.

Treatment of Meningitis with Serum.—Naccari states that the therapeutic action of antimeningococcus serum depends on the amount of bacteriotropins contained in the serum and on the specificity of the bacteriotropins for a given type of meningococcus. Bacteriotropins are more specific for meningococcus of the type which is used in the preparation of the serum than for other types. The author reports twenty-one cases of epidemic cerebrospinal meningitis in infants and children of Palermo. The patients were treated with serum prepared with strains of meningococci which were isolated from patients in the same city. The serum was administered generally through the spinal route and in some cases through the ventricular route. It was given daily in large doses up to from 100 to 206 cc. and in rare cases 380 cc. The treatment lasted from eight to thirty days and in rare cases forty days. The treatment was discontinued when clear cerebrospinal fluid appeared. Early administration is important. Five of seven patients in whom the treatment was started in the course of the first week of the disease recovered. In the remaining patients in the group the treatment began from the tenth to the twentieth day of onset of the disease. In all the cases which ended in recovery the improvement was manifest following the first few injections. Twelve of the patients recovered. The author calls attention to the fact that the percentage of recoveries is twice as great in patients treated with antiserum prepared with local meningococci as in those treated with antiserums prepared with meningococci from other places. He points out the advisability of preparing the antiserum in different cities for local use.

Radiologia Medica, Milan

25: 583-696 (July) 1938

*A More Physiologic Technic in Cholecystography. R. Impallomeni.—p. 583.

Difficulties in Roentgen Diagnosis of Osteosarcoma: Cases. G. M. Massari.—p. 598.

Possibility of Errors in Method of "Thin Barium Layer" for Roentgen Diagnosis of Peptic Ulcer. M. Bermond.—p. 615.

Mechanism of Emptying of Gallbladder. A. Casati.—p. 628.

Clinical Study of Disease from Irradiations. A. Anzilotti.—p. 641.

Bronchiectasic Bronchiolitis: Clinical and Roentgen Study. C. Scarinci.—p. 666.

Physiologic Cholecystography.—Impallomeni points out the importance of stimulating bile secretion in visualizing the gallbladder in cholecystography. He followed the behavior of cholecystography as it was done by Graham's technic or after administration of an intravenous injection of a mixture of either bile salts or liver amines and the opaque substance. The mixture was prepared by adding either 10 cc. of a 20 per cent sodium dihydrocholate solution or 3 or 4 cc. of the preparation of liver amines to 30 cc. of the opaque substance. The author carried on his work in two groups of persons, normal and those with hepatobiliary diseases, the number not being specified. The tests were performed during a fast. The author concludes that when Graham's technic is resorted to the gallbladder of normal persons is visualized in two hours as a small clear shadow, the size and darkness of which gradually increase. Distention of the gallbladder and elimination of bile by the structure early in the course of the test do not take place. The gallbladder of normal persons is visualized within fifteen minutes in the course of the combined cholecystography by bile salts in the opaque substance. By the end of the first hour it is entirely visible. By the end of the second hour it is as clear as after eight or ten hours when Graham's technic is used. Bronner's test, after the administration of two or three egg yolks, empties the gallbladder in the same manner and length of time as Boyden's meal does during the Graham test. Cholecystography by the combined method of liver amines in the opaque substances gives clearer and quicker results than those obtained by Graham's technic but more slowly than those obtained with bile salts.

Klinische Wochenschrift, Berlin

17: 921-960 (July 2) 1938. Partial Index

Bacteria and Virus in Hypermicroscopy. B. von Borries, E. Ruska and H. Ruska.—p. 921.

Iron-Copper Antagonism in Blood Plasma in Infectious Processes. L. Heilmeyer and G. Stüwe.—p. 925.

Cardiac Action of Caffeine. M. Kiese and H. Gummel.—p. 927.

*Vitamin C and Blood with Especial Consideration of Reticulocytes and of White Blood Picture. H. Barbier.—p. 928.

Evaluation of Oral Cholecystography. W. Lutz and H. Seyfried.—p. 933.

*Treatment of Toxic Diphtheria with Vitamin C and Hormone of Adrenal Cortex. J. Dieckhoff and K. Schüler.—p. 936.

Vitamin C and Blood.—Barbier directs attention to reports by other investigators in which it was claimed that, following the administration of vitamin C, an increase in the reticulocytes is noticeable in the blood. However, he also cites an author who failed to observe this increase in reticulocytes following the administration of considerable quantities of vitamin C. In contradistinction to other investigators, he was unable to detect a greatly increased flooding out of reticulocytes into the blood stream following the intravenous injection of vitamin C. Further, he takes up the reports about the favorable effects of vitamin C on leukemia, pointing out that daily injections of ascorbic acid supposedly effected normalization of the leukocyte count in cases of myeloid leukemia. He then describes studies on the blood picture of three patients with lymphatic leukemia and of one patient with myeloid leukemia who were treated with a vitamin C preparation at his clinic. In all these patients he failed to observe a reduction of leukocytes following the treatment with vitamin C.

Adrenal Cortex and Vitamin C in Diphtheria.—Following a brief review of the literature on the combined administration of vitamin C and adrenal cortex extract in toxic diphtheria, Dieckhoff and Schüler say that since the summer of 1936 they resorted to this treatment also in the severe cases of toxic diphtheria. They employed it in addition to the customary serotherapy. They observed that the auxiliary hormone and vitamin therapy failed to influence the general condition, the development of myocarditis, the postdiphtheric paralysis or the mortality of patients with severe toxic diphtheria. In none of the ninety-three cases was it possible to observe an effect on the circulation, particularly on the impairment of the cardiac muscle. However, the hemorrhagic diathesis of toxic diphtheria was to a great extent prevented by the endocrine-vitamin therapy.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

103: 503-670 (June 25) 1938. Partial Index

Investigations on Quantitative Porphyrin Metabolism in Healthy Persons and Patients. J. T. Brugsch.—p. 503.

Homologous Change of Viscosity and Sedimentation Effect of Colloidal Solutions. F. Frimberger.—p. 539.

*Nutritional Edema and Its Origin. H. Luckner.—p. 563.

Pathology of Nutritional Edema. H. Luckner and K. Scriba.—p. 586.

Increase in Respiratory Minute Volume During Exertion and Reduced Oxygen Pressure. F. Kürten.—p. 622.

Histamine Content of Organs During Serous Inflammation. H. Kaunitz, R. Neugebauer and E. Schweiger.—p. 627.

Nutritional Edema.—Luckner says that the food taken by persons who acquired nutritional edema had a high fluid content but was deficient in caloric value; the protein and fat contents were low, while the carbohydrate content was relatively high; the mineral content was generally high but the vitamin content was low. It was suggested that, in addition to the caloric insufficiency of the diet, the lack of a certain essential constituent in the diet might be responsible for the pathogenesis of nutritional edema. Some suggested that deficiency in fats was the causal factor, while others suggested protein deficiency or lack of vitamins. By an inadequate diet he produced nutritional edema in rats and then compared the symptoms in these animals with those in human subjects. He was able to demonstrate similarity in the essential points. In studies on the

etiology of nutritional edema, he found that the addition of vitamins A, B_2, C and D has no influence on the formation of edema. The addition of vitamin B_1, however, retards the development of edema. This retardation is explained by the significance of vitamin B_1 for the processes of resorption in the gastrointestinal tract. In feeding the animals with rations consisting chiefly of carrots and turnips, edema formation follows regularly. After prolonged feeding with cabbage, edema develops occasionally; but in the course of feeding with kohlrabi, edema was never observed. By adding 0.5 per cent of casein to the basic diet of carrots, edema can be prevented and slight growth can be observed in the animals. If only 0.25 per cent of casein is added, edemas develop after from ninety to 100 days. The addition of the amino acids aminoacetic acid, asparaginic acid, tyrosine and tryptophan has no influence on the pathogenesis of nutritional edema. However, edema formation is prevented by the addition to the food of small amounts of cystine and glutathione. The efficacy of cystine is probably due to the fact that the cystine content of the protein of the basic diet is inadequate for the formation of the plasma protein. The decrease in the colloid osmotic pressure connected with this deficiency of plasma protein results in the formation of edema. In summarizing the observations, the author reaches the conclusion that nutritional edema is caused by malnutrition with biologically deficient protein. By causing a disturbance in the resorption of food, deficiency of vitamin B_1 may accelerate the appearance of the edema.

Sovetskaya Psikhonevrologia, Kharkov

14: 1-111 (No. 2) 1938. Partial Index

The Hertwig-Magendie Phenomenon in Nervous Pathology and Its Diagnostic Significance. V. M. Slonimskaya.—p. 3.
Trophic Functions of Premotor Area of Cortex of the Brain. O. S. Valshonok.—p. 9.
Pathophysiology of Synkinesis of Immitation. S. I. Rotenberg.—p. 29.
Spinal Arachnoiditis and Its Surgical Treatment. Ya. M. Pavlonskiy.—p. 36.
*Hemangioma of the Vertebral Column. I. S. Rosentsweig.—p. 47.

Hemangioma of the Vertebral Column. — According to Rosentsweig, hemangiomas of the vertebral column are benign vascular neoplasms developing frequently on the basis of a congenital anomaly of the vascular system. The great majority of these tumors are found accidentally at necropsies. Hemangiomas only rarely give rise to clinical manifestations. They are capable, however, of producing a clinical picture of compression of the spinal cord. Of the five patients observed by the author, four presented symptoms of spinal cord compression. The diagnosis of hemangioma of the vertebral column is possible only on the basis of roentgenologic examination. Hemangiomas causing compression of the cord may be treated by operative intervention or by roentgen irradiation. The former has a higher mortality because of profuse bleeding. Roentgenotherapy has been widely used in this condition with gratifying results. The author reports a cure in three of his four cases so treated and an improvement in the fourth.

Acta Medica Scandinavica, Stockholm

96: 1-104 (June 30) 1938

Three Synchronized Leads Between Fixed Points on Heart Projection on the Chest Wall. G. Nylin and T. Sällström.—p. 1.
So-Called Arthropathia Mutilans. E. Jonsson.—p. 28.
*Etiology of Chorea Minor. G. Edgren.—p. 43.
*Arterial Hypertension and Vasopressor and Gonadotropic Hypophysial Hormones. A. van Bogaert and F. van Baarle.—p. 56.
Transplantation of Hypophysial Tissue in Treatment of Late Puberal Emaciation. E. Kylin.—p. 75.
*Diagnosis of Myocardial Infarct with Aid of Thoracic Leads. R. Langendorf and A. Pick.—p. 80.

Etiology of Chorea Minor.—Edgren points out that the most widely accepted opinion on the etiology of chorea minor is that it has some connection with a rheumatic infection. Bacteriologic examinations of the brain, the spinal fluid and the blood of patients with chorea minor have yielded diplococci, staphylococci and streptococci. The pathologic-anatomic aspects of the brain vary; embolisms, congestion and small hemorrhagic foci have been observed. Moreover, attacks of chorea minor have been known to alternate with attacks of acute polyarthritis or endocarditis, and infections of the throat, measles, scarlet fever and influenza have been suspected of a connection with chorea minor. Other investigators have suggested dysfunction of the parathyroids and psychic or physical traumas as causal factors of chorea minor. The majority of investigators regard hereditary predisposition as an important factor in the development of chorea minor and the author himself reports the case of a girl with chorea minor who had three siblings who were also subject to these attacks. Moreover, the mother of these siblings had had attacks of chorea gravidarum in the course of several of her pregnancies. Discussing the erythrocyte sedimentation speed of patients with chorea minor, the author says that in a large percentage of these patients it is either normal or slightly increased. He reaches the conclusion that the etiology of chorea minor has not been fully explained as yet. Many factors indicate that chorea minor is not a definite disease entity but rather a syndrome with various etiologies. Hereditary predisposition probably plays an important part in the etiology.

Arterial Hypertension and Hypophysial Hormones.—Van Bogaert and van Baarle point out that in recent years several investigators have attributed an important role to the hypophysis not only in eclampsia but also in certain forms of hypertension. After reviewing some of the studies on the presence of hypophysial hormones in the cerebrospinal fluid of patients with pregnancy toxicoses or of patients with hypertension, they report their own investigations. They aimed to determine whether in patients with hypertension the cerebrospinal fluid contains (1) the gonadotropic principle of the anterior hypophysis and (2) a vasopressor principle of the posterior hypophysis. They examined the cerebrospinal fluid of nineteen patients. They do not feel justified in drawing generalizing conclusions from their observations on a comparatively small number of patients, but they observed that the cerebrospinal fluid of men or women near the menopausal age, with or without signs of renal insufficiency or signs indicating impairment of the arterial system, did not contain hormones in a quantity sufficient to elicit maturation of ovarian follicles in impuberal mice or rats. On the other hand, in a case of eclampsia in which hypertension was accompanied by signs of ovarohypophysial dysfunction such as obesity and hypertrichosis, the cerebrospinal fluid had folliculizing power. The questions arising from these observations are whether the presence of folliculinizing hormones in the cerebrospinal fluid of the second type of subjects is not directly related to their dysendocriniasis and whether hypertension is only an accidental phenomenon in these cases. In further studies they aim to show that only those patients with hypertension who also have hypophysial disorders have folliculinizing substances in their cerebrospinal fluid. They think that patients with simple hypertension have neither folliculinizing nor vasopressor substance in the cerebrospinal fluid.

Thoracic Leads in Diagnosis of Myocardial Infarct.—Langendorf and Pick studied the electrocardiographic records of forty-four cases of myocardial infarcts of the anterior wall and of twenty-three cases of the posterior wall. They compared the electrocardiographic records in which the leads were taken from the extremities with those in which thoracic leads were employed and found that among the cases of myocardial infarcts of the anterior wall, and rarely also among those of the posterior wall, there were some in which only the thoracic lead permitted a diagnosis, whereas the leads from the extremities revealed either no changes indicative of myocardial infarct or such changes as were not sufficiently characteristic to permit a diagnosis. Conversely, there are rare cases in which thoracic leads fail to disclose a myocardial infarct of the anterior wall, whereas the classic leads (extremities) reveal the characteristic aspect of myocardial infarct. From these observations the authors conclude that the leads from the extremities and from the thorax are complementary and that it is erroneous to think that the thoracic leads alone are sufficient for the diagnosis of infarcts of the anterior wall and the leads from the extremities for the diagnosis of the infarcts of the posterior wall. To be sure, they admit that in individual cases of infarcts of the anterior wall the thoracic leads are frequently superior to those of the extremities.

THE STUDENT SECTION

of the

Journal of the American Medical Association

Devoted to the Educational Interests and Welfare of Medical Students, Interns and Residents in Hospitals

SATURDAY, AUGUST 27, 1938

A School Health Program

DON W. GUDAKUNST, M.D. DR.P.H.
State Commissioner of Health
LANSING, MICH.

The greatest public health problem of this country is to supply adequate medical care to the people. This is not a problem of any one social, geographic, economic or age group. It is universal. Studies made by various agencies all reveal the need for more and better medical care. The condition is a challenge to the public health and medical authorities. It is not my purpose to discuss the various proposed and attempted methods claimed to afford a solution of the condition, nor is it my purpose to do more than superficially analyze certain aspects of the problem. But I shall point out one of the ways whereby, here in Detroit, we are meeting this need.

There are in this community more than two thousand physicians licensed and qualified to practice medicine for nearly two million people. There are hospitals, dispensaries, welfare agencies, city physicians and various social and political arrangements all aimed at supplying medical care to the various groups at a price they can pay. There are enough doctors, there is enough wealth. There is enough ability to render good medical care to all at all times. People should have a doctor whenever they need one, whether that need is for alleviation of suffering, prolongation of life, cure of disease or prevention of sickness and preservation of health. Yet this utopian state of health, this ideal condition of the practice of medicine, is far from being reached. Why is it that we have a community with enough of everything medical and with a fair amount of wealth, and yet on the one hand many are without medical care and on the other the talents and skill of physicians are wasting because of lack of patients? Why is there needless sickness and premature death? Why are physicians denied their opportunity to serve?

There can be no simple answer. No single explanation will suffice, nor can any revolutionary change in methods of practice guarantee the desired results. It is certain, no matter what the whole picture may present, that one phase of the problem has to do with education. This is one of the basic, fundamental points. If the people knew the real value of medical care; if they but knew the need for utilization of the skill and abilities of physicians as applied to their own case; if they knew how, when and where to secure such care; if they knew the value received by buying and paying for medical services, then most assuredly our problem would be brought much nearer solution. The details of distribution of services and compensation for them could be more readily worked out if the people only knew what, when, why and how they should buy medical care. As a result of this lack of knowledge the problem, then, becomes one primarily of education. Our schools are the places which provide education. Hence, develop a school program and at once the whole thing is done. So simply stated, so easily perceived but so very difficult to achieve!

Time does not permit of delving into the history of more than four decades of school health work in this country, interesting as it might be to do so, nor can I any more than point out some of the obvious failures that have resulted from having certain types of medical services and health programs in our schools.

HEALTH SERVICE TO CHILDREN

Everything that is done in the schools has a certain educational value, just as every living experience of the child develops certain attitudes toward life and initiates or establishes certain practices and habits. Let us look briefly at some of the practices and analyze their end results. In many states and cities, school work has been highly developed along lines of service to children. The most casual inspection revealed children in need of medical care. Teeth were decayed; tonsils diseased; eyes, ears, hearts, lungs all needed medical treatment; children were without protection against diphtheria and smallpox. In short, children were in a bad way.

Read before the Wayne County Medical Society, Jan. 3, 1938

The World War reemphasized this condition. More and more money was poured into school medical services; more teeth were pulled and repaired, more examinations done, more eyes refracted; chest clinics and heart clinics were established; and so on through the whole gamut of the practice of medicine. The health of the next generation of adults had to be improved and protected at any cost. All this was very laudable, but what happened? As the result of parent-teacher association activities, summer round-up campaigns were inaugurated for youngsters about to enter school. In droves by the hundreds of thousands they were taken to school to have their physical examination by the school doctor or well intentioned private physicians; states passed laws compelling the schools to give annual or periodic examinations to all school children. The schools vaccinated all children because of compulsory vaccination laws; diphtheria prevention treatments were as much a part of the school routine as reading or writing instruction; preschool children, as well as adults, were urged to utilize these immunization clinics; extensive dental services were introduced; nurses, health teachers, gymnasium instructors, science teachers all told children what to eat, how and when to sleep, what to wear, how to play and exercise; we brushed the teeth and blew the noses for the children, all in the name of health education. And what happened? Maybe we did save lives, maybe we did remove tonsils, get glasses, repair teeth, cause children to gain weight, but what did we teach in respect to health? We taught the child and his parents to turn to the school as the source of all health guidance and counsel. We created a dependency on this arm of the state in respect to health. We assumed a load of obligations in the school too great to carry. There developed a distrust and disrespect for school physicians which undoubtedly, in the minds of the public, was directly transferred to no little extent to a distrust and disrespect for all physicians. We taught the child to depend on a type of service that was to be denied him when he was graduated from or left the schools. We were trying to treat a symptom of social sickness and not the cause. The defects of children, and not the cause of these defects, received our attention. We were engaged in a mopping-up process and not a prevention program. It was not until recently that a realization of all this has been effected. It was not until recently that any real effort has been made to use common sense in our school health programs and really teach both the needs of medical care and the means of securing such care. Detroit has pioneered in this field. Detroit is attempting to attack the basic health problem through education. The school, the public health authorities, the medical men have united in their efforts to establish a sound program.

If the people know the need for medical care, if they know where and how to secure it, and if they are given good value for the money they spend, the problem would be largely solved, even to the care of the medically indigent. Tax and charity supported institutions and programs will be inaugurated and operated for the needy if the people know the value of medical care. Tax appropriating bodies cannot afford to refuse the demands of an intelligent population; they cannot afford to refuse adequate compensation for medical services to indigents.

When the problem is looked at from this point of view, school health service and school health education programs become something far more than looking after a comparatively small section of the population. Then, truly, care and thought must be put into the health plans for the schools if our objective is to be education of the community in order to have complete medical care rather than merely building an emergency service for children of school age.

TEACHING THE NEED FOR MEDICAL CARE

Let us trace the activities of the Detroit schools in respect to certain of their services and see how well they fulfil their obligation to teach people the need for medical care as well as how to secure such care in our community as it is organized today. There is first the physical examination program. During the past few years physical examination blanks have been given to all the children entering a school for the first time. In certain of the schools and at the kindergarten and first, seventh and tenth grades, such blanks are given to all children in the class. These are designed for use by the private physician in order to allow him to report to the school the essential points about which the school has need to be acquainted. The school must know certain things about the children in order to conduct properly its teaching program and activities with the maximum efficiency and with the least possible danger to the individual child. Particularly must the school know about the hearing, vision, heart, nutrition and general health of each child. But it needs to know about such things as orthopedic defects and hernia if the child is to be a candidate for athletic activities. It must know about the communicable disease history and protections if groups are to be placed together and still be assured of a minimum of contagion and pestilence. For the child's own good, early defects must be discovered and corrected. These are all sound practices—and these reasons have allowed schools the world over to employ school physicians to make the necessary periodic physical examinations; but again let it be emphasized that when the school makes this examination it but teaches the child to turn to the school for this service. If it is granted that such an exami-

nation is advisable, it must also be admitted that the best place to secure such an examination is at the hands of the man who is to give continued and additional advice relative to this child and his health, and from one who is ready and able to carry out any corrective procedures that might be indicated by the examination. This means that the examination should be done in the office of the child's own physician—be that private physician or clinic. The question has been asked "Why not make such an examination compulsory? Compel every child to go to his own doctor for such services. If it is good for one, it must be good for all." The answer is simply that this is a program of education. You cannot compel people to learn nor can you compel them to live a healthy life. Compulsion would do more to defeat the plan than would having the services rendered all children every year in schools by state or city employed school doctors. We want to teach the people to go to doctors for services they want because they think and know that these services are worth while. Last year more than 20,000 children went to about 1,500 physicians for their own school examination. There is no means of computing the amount of money spent for this or the ultimate amount of good that was done and will continue to be done for these children. During the present year it is to be hoped that this number will be increased by at least half; 35,000 children served by their own doctors because that many children and their parents have been convinced that such services are worth seeking.

This by no means represents all the vast number of children who should have such care—that would be all of the more than 330,000 children in the public and parochial schools. But for the rest a different technic is used—they are the ones from families who do not think this is worth spending money for. The school teachers here play their part. For the past sixteen years the teachers in Detroit schools have been engaged in conducting a special examination of their students. We all appreciate the need for teachers and schools examining children as to their knowledge and educationl advancement in reading, writing and spelling, but it is not so universally appreciated that schools need to conduct the same sort of examination of the children in respect to their health knowledge. If a child knows enough to go to his own physician and return to school a report of the results—that child "passes"—he is examined no further by the teacher. But for the remainder there is no measure of their health practices and knowledge unless some type of examination is made. Hence, each year the teacher inspects all the other children for the presence of certain physical defects—vision, hearing, teeth, tonsils, cervical glands, thyroid, posture, nutrition, skin. She has been trained to do this inspection the same as she has been trained in other methods of educational diagnosis. She wants to find those children who have failed to look after their own health. She wants to find those who need special education. This she can do. Accept my word for it that her work is highly accurate, that she is not doing medical staff work but merely that of a school teacher. Those children who are found to have gross defects that apparently should be in the hands of a medical man are subject to a second type of examination aimed at measuring their knowledge of good health practices. Remember, this teacher is not primarily concerned with the discovery of pathologic conditions but with children who are in need of medical attention and who do not know the need of it or who do not know how to get it if they do realize the need. If the child has an obvious defect and is actively under the care of a physician for that particular fault at the time, there is nothing more that the school needs or can do about it. But if those defective eyes, ears or tonsils or if that faulty nutrition or thyroid is not immediately under a doctor's care the school is almost compelled to do something about it, for here is a very important fault in the education of the child and his family—here is a child in a family that does not know there are things medical needing to be done which can be done. The parents are invited to come to school to discuss the health of this child. Thus far the teacher is on safe ground, for she has been dealing with observation of facts. But the minute she attempts to tell parents what should be done about the disease and health of the child she steps over into the field of the practice of medicine. This she cannot do; hence physicians are employed to meet with these parents who have been invited to school to discuss the health problems of their own children.

EDUCATIONAL TASK OF THE PHYSICIAN

The school physician takes up the educational task at this point. He meets from ten to fifteen parents in a morning. He examines those children who have been shown by the teachers to have physical defects for which they are not receiving medical care. He demonstrates these defects to the parent; he points out the need for medical care and, what is most important, he carefully instructs the parents how to secure such care. It is not his task to give the care or even to advise the kind of care needed. He is concerned with pointing out the need for and way of securing care. This advice cannot be routinized in any manner—it must vary to meet the individual situation. Usually it consists of telling the parents to return to their regular attending physician. At times, for certain classes of patients, it consists of discussion of the proper use of free clinics. Again it may be made up of an explanation of one or more of the various plans set up by the Wayne County

Medical Society, the city or the state to assist people in securing medical care. His work is purely educational—education given by members of the medical society, directed at those very persons who, as the result of the teacher's diagnosis, are found to be in need of such directed teaching.

A word about these school physicians. They are for the most part young men and women—graduates of the best schools—having had the best of hospital training and well recommended by their fellow practitioners. They are in no sense of the word political appointees. They must meet the highest standards of training and personality, for they are placed in schools to represent the practice of medicine to the very group that needs to be convinced that medicine has something to offer them. These school physicians are appointed to the staff for a period of but two years, approximately one hundred of them serving at any one time, fifty new to the work each year. This rapid turnover is deliberately done in order to acquaint an ever increasing number of physicians with the needs of the school child, with the vast amount of corrective work that must be done, with the methods of "selling" medical services to parents who are reluctant for one reason or another to have such service, and to acquaint the practicing medical profession with the facilities of the school aimed at furnishing an education for the handicapped children.

CONTROL OF COMMUNICABLE DISEASES

The control of communicable diseases in school has long been one of the major problems of the school health staff. When the situation is looked at in a fair, impartial manner it must be admitted that much of the effort that has been expended in the past has been entirely wasted. It was for the purpose of control of contagion that physicians were first placed in schools about a century ago. But contagion went merrily on its way. The theory used was all wrong. To place an army of doctors and nurses in school to detect sickness after it had occurred and after the child had come to school can be of no avail, for we are dealing with contagious and communicable conditions. The sick child has no business in school. Yet this simple thought does not seem to have been appreciated until a late date. In fact, today it is the exceptional school system that does appreciate it. The child who comes to school with any form of sickness represents a family lacking in knowledge of how to care for the child and how to act best to protect the health of the public. Placing a staff of diagnosticians in school would only tend to increase the desire of parents to send their sick children to school. Why shouldn't they send the child to school to find out what is wrong with him? But the minute that is done there is the start of a new epidemic. The sick child does not belong in school. Parents can be taught to keep such children home. When they do slip, it is the duty of the teacher to detect such slips as indications of the need of further education. Because of this need, teachers conduct an inspection each morning of their students. This is not a formal medical examination but merely observation of the children to see whether any are sick. If there are such they are sent to the school nurse, who passes on those that show signs of communicable disease. These children are then taken home; an explanation is given the mother as to what she has done to her child and how she has exposed other children of the class. Further, it is the duty of the teacher or of the nurse who takes the child home to instruct the mother what she should have done—how she should have called in medical advice before sending her child to school in an obviously ill state. She is advised to call in her own physician for treatment, but the school, through the board of health, sends a diagnostician to the home as soon as possible so as to establish immediately a true diagnosis and allow for the prompt institution of control methods within the school. Much criticism has arisen over this point. We seemingly are working at cross purposes here. The school and the department of health should not have to interfere with the physician-patient relationship. But parents who thoughtlessly and needlessly send a child who has scarlet fever, measles, whooping cough or any other communicable condition to school cannot be trusted too far. They cannot be expected to do the entirely right thing of immediately calling their own physician for all too frequently the child does not appear too sick. He has either a very mild condition or a very early stage of a serious state. Obviously the former is usually the fact, for the child did not feel too sick to go to school. And the school must have an immediate report—delay of a day may mean the development of a serious outbreak. The only alternative to sending a physician to the home of every such case would be having one in school (as is still done in many cities), and this would take us right back where we started—teaching the people to turn to the school for medical diagnoses and advice.

IMMUNIZATION

I need no more than mention the other phase of communicable disease control as carried out in our schools—immunization. We are entering the tenth year since a dose of diphtheria prevention treatment—toxin antitoxin or toxoid—was given in any Detroit school, yet nearly 90 per cent of the school children have had one or more series of treatments. Diphtheria has ceased to be a major threat and has become so since we discontinued diphtheria immunization as a school project. As long as the school engaged in administering these treatments just

so long did the people turn to the school for this type of care, and as long as they turned to the school just so long did they neglect to have the preschool children protected. Thus in the year before our present method was established there were more than 100,000 school children given protective treatments. But there were also 450 deaths from diphtheria—most of them of preschool children. Through our well intentioned efforts we had advertised the need of protecting the school child against diphtheria to such a point that the preschool child was neglected. In the minds of the people there was the thought that this was a disease of the school age, for if it were not so then why did the school pay so much attention to it and why did the school see fit to set up elaborate and expensive clinics for its control? Hence the rank and file of parents waited until their children were in school before granting them protection. The result was 450 deaths a year. Now we are greatly perturbed because during the year just passed there were a few more than twenty deaths of Detroit people. There were no more because parents have learned to take this responsibility on themselves—because parents have taken their children, long before school age, to their own doctors for protection. Diphtheria has not been eradicated, but it has been controlled in a way that would not have been possible if mass immunization programs were carried on in the schools.

So too with smallpox. While we have not completely eliminated the vaccination of children in our schools, the amount of service has been greatly reduced. Each year that which is done in the schools is less and less. Education of the parents as to the need for vaccination—education of the parents as to how to secure this service—has left but 5 per cent of the entire school population to be cared for by the school doctors.

Schools no longer are the place of epidemics that they once were. While it is not possible to eradicate disease of a communicable nature completely, the number of cases has been reduced most markedly. Parents have learned to keep their children home when sick. They are learning to call in their own doctors; children are protected by their own physicians against certain diseases, not because the children are forced or herded into this action but because they and their parents know that this is the cheapest and safest course of action to follow because they and their parents have learned that money spent for this type of service returns large dividends both in health and in money.

The modern concept of school health programs cannot for a moment stop or start with the four walls of the school. Schools are but a part of the community. The value of the school and its educational program depends on how well they are focused on community needs. School health studies, the examination of children, measuring the amount of communicable disease, and the amount of disease prevention treatments that have been given but reflect the needs of the entire community. If we find that 8 per cent of the students are in need of dental care, then we have a community lacking in adequate dental care for the rest of the population. If there are a large number of pupils with uncorrected vision in the school, then we have a community with need for additional attention to the eyes. The proportion to which defects are found in school children reveals the thinking of the community. School children are but samples of the population and show the level of health education operating in the home. When the school looks on its health problems as being expressions of lack of appreciation of the value of good medical services, then a real challenge and a real opportunity are afforded the health and medical authorities.

The school is not an organization set apart from the rest of the social structure; the cultural, educational, social and health backgrounds of the component families determine the school needs. Obviously, if this is true only the most superficial effort is made to secure improved living if the activities are limited to the school itself. The poor health conditions of school children are symptoms of community ignorance of good health practices.

OBTAINING COOPERATION OF PRACTICING PHYSICIANS

Not only does the school need to educate its students and teachers, but its program should be aimed directly at reaching others not ordinarily considered as an integral part of the school system. One of the most essential community agencies is the medical profession as represented by the practicing physicians. When there is antagonism existing between private physicians and the school doctors, dentists, nurses or teachers, then the school is in error. When such a condition unfortunately exists, the school has failed to elicit the cooperation of the very group charged with the responsibility of health supervision and care. There can be no misunderstanding on this point. The physicians who object to and fight against the school and its practices may in individual instances be wrong, but the error rests with the school in not preparing these physicians to play their role and in not including them in the picture. It is in error in not taking their problems, rights, and points of view into consideration. Physicians will approve and assist in the school health program when they understand its aims and objectives, together with the various steps taken in achieving these ends. They will lend their full support when the school refrains from doing those things that should be, and can well

be, cared for by the practicing physicians of the community. They will aid the school in carrying out those phases of the program that can be handled only on a group basis, when they are afforded an opportunity to see that it is only through such methods that the general health practices of the community can be raised.

To this end here in Detroit we have taken a long step forward. No longer are the health department and the board of education the only groups concerned with building and carrying out school programs. I wish to pay tribute to the wise policy of actively including the Wayne County Medical Society in the picture—included not merely as a figurehead but as an active planning force, a group originating ideas, a group carefully measuring and considering the effectiveness of the steps that have been taken. To the School Health Committee, as a part of the Medical Economic Commission, goes the credit. This committee has been not merely a buffer to shield the director of school health service of the Detroit Department of Health, as has been occasionally charged; it is rather a committee composed of representatives of various branches of the practice of medicine, well leavened with training in the science and art of public health, working out details of programs as well as main ideas. Further, it is the task of this committee to see that the practicing medical group knows what the plans are and in what way it can assist in carrying out these plans. Thus there is more nearly certain assurance that not only will the health needs of Detroit's school children be met, not only will the level of health practices be raised for the entire community, but also that in so doing the practicing physician will be afforded wider scope for service with all the concomitant benefits accruing to him.

Comments and Reviews

SURVEY OF TUBERCULOSIS AMONG MEDICAL STUDENTS

Many reports have appeared from student health services of universities indicating that tuberculosis is the main occupational hazard of medical students. In a survey, the Tuberculosis Committee of the American Student Health Association found that in the school year 1934-1935 the incidence of tuberculous disease was 5.7 per thousand in seventeen colleges having an active program for the detection of tuberculosis. In three colleges having no programs, with an enrolment of 13,000 students, the incidence of tuberculous disease was 1.2 per thousand.

At the University of Minnesota, Myers found that about 100 per cent of the graduating classes of the schools of nursing and medicine had positive tuberculin reactions. Less than 50 per cent of the other schools of the same university fell in the same category. Soper and Wilson studied the students entering Yale in 1931. Of the undergraduates, 53.3 per cent reacted to tuberculin; 67.7 per cent of graduate students reacted. Of the latter, those entering law reacted in 57.8 per cent; those entering medicine reacted in 76.9 per cent. At the University of Wisconsin, Stiehm studied the tuberculin reaction of all students enrolled during the school year 1933-1934. The average incidence of positive reactions was 29.9 per cent, while among the medical students 44.7 per cent of the freshmen and 55 per cent of the seniors had positive tuberculin reactions. At the University of Pennsylvania in the school year 1930-1931, tuberculin testing showed that there was an average of 85.6 per cent positive reactions among undergraduate students, while the medical students averaged 93.6 per cent positive reactions, with a steady increase from 84.8 to 98.2 per cent in the successive four years.

These surveys show that medical students acquire tuberculous infection to a greater extent than do other students.

ACTUAL TUBERCULOUS DISEASE

Soper and Wilson studied the entering class of 1,644 students at Yale in the fall of 1930. Among the forty-four entering medical school, 4.5 per cent showed latent adult type tuberculosis while only 1.3 per cent of the rest of the students showed a similar condition. At the University of Pennsylvania in 1930 the incidence of obvious pulmonary tuberculosis among medical students was found to be 1.02, 0, 3.1 and 7.4 per cent for the four years. In the school year 1935-1936 at Pennsylvania, 1,024 students were roentgenographed in the undergraduate and graduate schools, uncovering six cases of pulmonary tuberculosis (0.58 per cent). In the medical school in the same year the incidence was 0, 0.8, 8.02 and 12.8 per cent for the four years, the average being 5.8 per cent.

At the Phipps Institute the incidence of apical tuberculosis among college students of ages 17-21 varied from 1.5 to 6.7 per cent. Among the medical students between the ages of 21 and 26 the incidence varied from 4.9 to 30.3 per cent, with a steady progression with age. Another survey by the same group of men showed that the incidence of apical tuberculosis in medical students varied from two to five times that of dental and law students.

Abstract of a paper by Victor Hirsch, University of Pennsylvania.

In comparison are statistics gathered from a questionnaire which the committee sent to all medical schools in the United States. The incidence of positive tuberculin reactions among students in medical schools in the East showed a definite increase throughout the four successive years. The percentage of positive reactions in the first year classes varied from as low as 20 to as high as 85. In the graduating classes of the same schools the percentage was in all cases greater than 80, the average being 91.5. Reports from the Middle West indicated that the average would fall at not greater than 50 per cent for the four years. No results were obtained from the Far West. In the South the average for four years exceeded 60 per cent, the tendency being for higher rates to be reported from the sea coast district and lower rates from the mountains. These results substantially agree with those previously recorded as to three factors: (1) the high incidence of positive tuberculin reactions among medical students, (2) the progressive increase of tuberculin reactions with successive years of the medical course and (3) the high incidence along the Atlantic coast and lower incidence in the Middle West.

In four Eastern schools with adequate programs for detection of tuberculosis, the incidence increased steadily from the freshman to the senior class. The minimum incidence was 0 per cent, which occurred only in freshman classes. Three of the four reported the maximum incidence in the senior year. The average for these three schools was 7 per cent for the senior year. Figures from New England, the Middle West and the South showed little progression from year to year as the percentages were quite low in each class. A representative figure is that of the University of Michigan, where over a period of years the average incidence has been 0.52 per cent for the freshman class and 0.42 per cent for the senior class, the average for the four years being 0.36 per cent.

The situation is alarming. The statistics given are those of schools where the most reliable programs are in operation. Undoubtedly the incidence in medical schools in general is not nearly this high, but statistics as furnished by some thirty schools could not be included because of their incompleteness. On the other hand, many of the schools have no adequate program for the detection of tuberculosis, and it is fair to assume that those schools from which replies were not received are to a large extent delinquent in this matter.

Predisposing Factors

In a study of this sort it is necessary to discover whether it is the individual or the environment which differs from the normal. The questionnaire issued by the committee included requests for information about any correlation found between the development of tuberculous disease in any given individual and the family history, the individual history, the extracurricular work and housing facilities. One school found a correlation of 18 per cent between the family history and the development of tuberculosis in its students.

There were no reports which would indicate that a preexisting lesion was definitely a cause of tuberculosis in the same student while in medical school.

Six schools reported a tendency for extracurricular work to have a part in tuberculosis in medical students. One school reported that 60 per cent of the cases of tuberculosis were in students who did extracurricular work.

Less than one fourth of the schools reported that they have control of housing facilities for the students, which includes adequate health inspection of the proprietors and other employees. The remaining three fourths have no control over housing facilities. Only one of the schools had compulsory physical education.

Thus far there is no evidence on which to base a belief that predisposing factors have an important part.

Sources of Infection

The committee feels that there is sufficient evidence indicating that, at least in the group under discussion, exogenous reinfection is extremely important. Of the sources of infection that have been suggested, the most important are contact with tuberculous patients and classmates, necropsy rooms, boarding and fraternity houses. In addition, bacteriology laboratories have also been indicated.

Dr. Stiehm at Wisconsin reports that among nineteen girls living in a sorority house one had been troubled by a cough for three months before consulting a physician, who then discovered that she had far advanced tuberculosis. Fifteen of the other eighteen reported for tuberculin tests, and of this group eleven had been previously tested and were negative. Of the eleven known negative reactors 100 per cent were now positive. The one individual showing a negative test had been living in the sorority house for only two weeks. Two of these girls subsequently showed active lesions, necessitating withdrawal from school.

In a report by Diehl and Meyers at the thirty-second annual meeting of the National Tuberculosis Association, contact with other students and exposure to tuberculous patients were felt to be the important factors in a study of the case histories of students who had acquired tuberculosis.

Diagnosis

Physical examinations are not sufficient to diagnose early cases of tuberculosis. A routine

case-finding program is indicated if early cases are to be disclosed. In a survey made by this committee of methods used in colleges and medical schools, some procedures were suggested which should be included in the ideal case-finding program. Such a program should include the Mantoux test or some other method of testing sensitivity, x-ray examination of positive reactors at periodic intervals and retesting of negative reactors at periodic intervals, followed by x-ray examination if they become positive. Any person having roentgenographically demonstrable lesions should be further studied by laboratory methods with regard to the sputum, blood sedimentation rate, differential blood count, temperature variation and gastric contents.

Forty-one of the seventy-seven medical schools to which questionnaires were sent have responded. Of the forty-one schools, twenty-eight have an active program. Of the twenty-eight schools having a program, it is available to every student in each school. In twenty-one of the twenty-eight it is compulsory. In the remaining seven from 33⅓ to 100 per cent of the students availed themselves of the service, indicating that medical students too are blind to their own advantage.

Thirty of the schools have a student health department which, in twenty-six cases, administers a tuberculosis program. All the student health departments carry out routine physical examinations each year on entering freshmen, and some on all four classes. Seventeen of these departments apply tuberculin tests to entering freshmen. In all but two, negative reactors are retested periodically. Seven carry out the retest at yearly intervals, three at four month intervals, and the rest repeat the test in the senior year or at irregular intervals. One school, instead of using the Mantoux test as a filter, roentgenographs all the entering freshmen, while another school uses the fluoroscope as a routine in the same manner.

X-ray examination is applied in twelve schools to all freshmen before attending classes. Three additional schools roentgenograph their tuberculin positive freshmen. Six other schools roentgenograph all students each year, and one applies the fluoroscope in the same manner. Fourteen schools roentgenograph all tuberculin positive students every year and fourteen schools roentgenograph all new tuberculin reactors as soon as the reaction becomes positive. Six schools apply the x-rays during the senior year to the graduating class.

Data gathered at the University of Pennsylvania show that when symptoms were regarded as a sufficient warning 32 per cent of the cases were incipient, 55 per cent moderately advanced and 13 per cent far advanced. With the institution of routine chest roentgenograms an additional 60 per cent of cases were diagnosed in the incipient stage.

Prophylaxis

Prophylaxis of tuberculosis, with particular reference to medical students, is dependent on elimination of all sources of infection as far as possible and general hygiene of the individual. Medical students should strive toward better care of their physical well-being. The student in whose family there is any history of tuberculosis should be especially careful.

To eliminate exogenous sources of infection, the removal of the tuberculous student is important. Of utmost importance is the prevention of infection in the clinics and dispensaries. Myers of Minnesota, and others, advise aseptic technic in the handling of all sputum positive patients just as in handling any other contagious disease.

More sanitary methods would not be amiss in the necropsy rooms: more careful handling of infected organs; disinfection of gowns, gloves and tables, and possibly the wearing of masks by the student during necropsies in advanced cases of tuberculosis.

Boarding houses and fraternity houses should be investigated with reference to tuberculosis among the employees.

In the bacteriology laboratory the use is recommended of nonpathogenic strains which are available for culturing, the use of killed cultures for staining purposes, and obedience by the student to laboratory regulations requiring that loops contaminated with a culture of tubercle bacilli be placed in boiling water for several minutes before flaming. Failure to carry out the last point in handling pathogenic strains can easily provide an inoculum for a whole class.

Cost

Where large groups are handled by a well organized student health department, financed by an annual health fee, the actual cost of a tuberculosis program can be as low as $2 a year per student. Satisfactory results can be achieved by the use of paper x-ray plates with a check up of suspicious cases by celluloid films with the resultant saving of about 50 per cent of the cost of the latter. The fluoroscope can also be utilized to economic advantage, though probably its use is best restricted to persons of slight or moderate build. Whatever the cost, it must be met if there is going to be a reduction in tuberculosis morbidity among medical students.

Conclusions

It has been shown that medical students are particularly prone to acquire tuberculosis, that they are infected to a much greater degree than other student groups, and that infection and

the development of the disease occur chiefly in the clinical years of their training. The most obvious cause of this is their high degree of exposure to tuberculous patients where sanitary precautions are not observed. It has been demonstrated that a modern case-finding program will reveal tuberculosis in its most easily arrested stage and at a time when ultimate recovery is almost guaranteed. Consequently, the American Medical Students' Association recommends the institution of a case-finding program in all medical schools, and the institution of isolation and aseptic technic in handling open tuberculosis.

WHAT SHOULD THE DOCTOR BE TAUGHT?

We must agree with Aristotle, said W. R. Halliday, LL.D.,[1] principal of King's College, London, that there are other qualities than those which can be tested by examinations which are necessary to the application of medical knowledge. It is common experience that, in some branches of the profession, one who has not been a brilliant student may prove to be a better practitioner than his fellow who has been more successful in academic tests. Can one think of two more different men in the higher walks of medicine than William and John Hunter? William, the fashionable accoucheur, an eloquent orator and a social success; John, incomparably the greater original genius, difficult, rather farouche, and tongue tied to such an extent that before giving his lectures he required to fortify himself with a draft of laudanum. We sometimes confuse the minimum standard of knowledge required for a license to practice and what is quite different, a hall-mark of scientific proficiency and promise. There is work for general practitioners as well as for specialists. These specialist enthusiasts, Dr. Halliday said, are terribly single minded. Long ago, Peter Latham wrote: "Many a great chemist, a great botanist or a great master of analysis may be found to contend that what he has to teach is indispensable to the medical student; that the principles of his science are at the root of all rational practice. But beware of great authorities. They have a tyrannous way with them." In former days, the specialties of the clinical period of study had not developed their modern complexity and multiplicity. It was not unusual then for a doctor to have taken his degree in the humanities before he came to the study of medicine, and this kind of education produced a very fine type, a type which was especially qualified to keep the medical profession in intimate touch with the world of laymen. But whether we deplore it or not, that kind of medical education has gone for good. The basis of modern medical education is now scientific. One must start with elementary zoology, botany, physics and chemistry on the theory that the doctor to be is to get an idea of the principles of these sciences. There is one school of thought which is working in the direction of teaching these subjects as specially adapted to the brains and requirements of medical students. That, Dr. Halliday said, is wrong. He would like these elements of science to be kept quite disinterested. It is important that the future physician get a glimmering of what these sciences are about irrespective of the art of healing. It is important if he is later to be a specialist that he should have sufficient general grounding to be able to resume and to carry further his studies in the relevant science.

Is the prospective general practitioner to be expected to master every possible method of treatment during his period of study? That is the problem which has to be faced, for as medical science advances the subjects will multiply still further. To try to teach too many subjects in a given time is to have them all imperfectly mastered. It is not a good plan to set up a standard which involves knowing less and less about more and more. I am sure, Dr. Halliday continued, that some at least will consider that there is a real danger of the medical curriculum for the ordinary student becoming overloaded. Surely to turn out good doctors and to advance medical knowledge in the long run does just as much to relieve human suffering as the maintenance of the wards in a hospital.

1. Halliday, W. R.: What Should the Doctor Be Taught? Lancet 2:866 (Oct. 9) 1937.

STUDY OF SYPHILIS AMONG WISCONSIN STUDENTS

In view of the national syphilis campaign, the Department of Student Health at the University of Wisconsin endeavored to determine the incidence of syphilis among the college students. An elaborate setup was established to assure the student protection against his identity being revealed when the results were posted, then a post card was sent to every student inviting him to have a Wassermann test made on a certain day. While at first the response was high, it gradually fell off as the novelty decreased, and the total number of tests made finally amounted to only 30.5 per cent of the student population. There were 2,442 tests made on male and 944 on female students. A report of this study has been made by the director of the Department of Student Health, Dr. Llewellyn Cole.[1] A negligible amount of syphilis was discovered. There were only two cases of active syphilis in the group of 3,389 who submitted to the examination, two cases in which there was a persistent 1 plus reaction

1. Cole, L. R.: Survey of Syphilis Among Students at University of Wisconsin, Arch. Dermat. & Syph. 38:70 (July) 1938.

and one case in which there was a 2 plus reaction. Six doubtful reactions were reported and on repeated examinations they were still doubtful. The conclusion arrived at from this study coincides with the experience in the care of students at the University Infirmary where among about 2,000 admissions and about 50,000 outpatient visits during the year, one or two is the maximum number of cases of syphilis discovered. Nevertheless, Dr. Cole recommends that the Wassermann test be performed as a routine on each newly entering student and on each graduating student.

INTERN TRAINING IN OBSTETRICS

The Maternal Welfare Commission of the Pennsylvania State Medical Society recently endeavored to secure the opinion of recent interns and of older practicing physicians on the present method of training interns in obstetrics in the approved one year hospitals in Pennsylvania. Dr. Walter J. Larkin,[1] a member of the commission, sent a questionnaire to 200 recent interns. It was not compulsory for the interns to reply to the questionnaire nor did they need to sign their names. Following is an abstract of Dr. Larkin's report on this survey: The first question was "Do you honestly think that your obstetrical training received as an intern qualified you to do obstetrics, unassisted, in the home or hospital?" Among 154 replies, twenty-two answered the question "yes" and 132 answered "no." The second question was "If not, was your service too brief or not properly supervised, or too small, or what?" More than 90 per cent of the replies to this question were to the effect that the service was too brief; 64 per cent replied that the service was too brief and not properly supervised, and 23 per cent responded that the service was too small. Some of the other questions with Dr. Larkin's comments were: Do you think you should have had more difficult obstetrics or more forceps deliveries? Ninety-seven per cent (128) of the answers were "Yes." Many qualified their statements by saying that they would have been satisfied if the cases had been properly discussed and properly supervised, even though they had not been allowed to apply the forceps. One replied that "he had never had a forceps delivery but had witnessed one forceps delivery. Most of them replied to the effect that they did not have enough forceps deliveries for a young man entering a small town practice. How many forceps deliveries did you have? Thirty-four physicians entering practice in the commonwealth of Pennsylvania, in small cities, stated that they had never had a forceps delivery and had never put on forceps. At how many cesarean sections did you assist? The answers to this question varied from none to twelve. Six did not assist at any.

Dr. Larkin also sent 100 questionnaires to practitioners who had completed their internship within the last ten years and thirty-five questionnaires to physicians who had been in practice more than ten years. Some of the questions and the analysis of the replies were as follows: 1. How much laboratory work do you perform in your office, such as urinalyses, blood counts, blood sugar estimations, Wassermanns, smears, etc.? 2. How much of your laboratory work do you send to the laboratory? 3. If you do laboratory work in your office, of what does it consist? 4. How many necropsies have you performed since completing your internship? 5. At how many have you assisted? Three had performed one or more necropsies; all had been coroners or coroners' assistants. No one in general practice did anything outside of urinalyses and blood counts. Every one stated that he was doing his own urinalyses. Seven physicians responded that they were doing their own blood counts.

The results of this questionnaire prove, Dr. Larkin says, "that there is something wrong with the obstetrical training of the intern and something definitely wrong with the time lost in laboratory training for the intern. The laboratory service which is never used in full when a young man leaves his internship is overemphasized, and too much time is lost in that department. . . . A six weeks period is not sufficient time in which to train a man to do obstetrics." "Yet the commonwealth of Pennsylvania insists that the intern spend two solid months of eight hour days in the laboratory and but six weeks, with no restriction on the number of hours, in obstetrical training."

1. Larkin, Walter J.: A Survey on Intern Training in Obstetrics and Laboratory Work, Pennsylvania M. J. 41:714 (May) 1938.

Claude Bernard's Graduating Thesis

In 1843 Bernard set himself to discover what happens to different foodstuffs in the course of nutrition. He was led to the conviction that phenomena of nutrition can be settled only from the point of view of the chemist. He started with digestion in the stomach, particularly the role of gastric juice. His original contribution was that gastric juice acts upon cane sugar, for he found that if sugar was injected into the blood after it had been acted upon by gastric juice it could no longer be recovered in the urine, whereas if cane sugar alone was injected into the blood it was excreted unchanged. He used these results for the thesis for his degree of doctor of medicine, which he presented in December of this year, throwing in for good measure a few pages on such unrelated topics as hydrocephalus, aneurysms and cupping glasses. He was successful in his defense of this thesis, and in publishing it he dedicated it to Magendie. The completion of his medical course did not fundamentally change his mode of life, except to transfer his activities completely from the hospitals to the laboratory. He never at any time engaged in the practice of medicine.—Olmsted, J. M. D.: Claude Bernard, Physiologist, New York, Harper & Bros., 1938.

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items to be considered for publication in the Student Section.

Minnesota Fellows to Study Cancer

The National Advisory Cancer Council of the U. S. Public Health Service has awarded fellowships to Drs. Raymond E. Buirge, Charles B. Craft and Carl J. Lind Jr., all of whom for the last three years have had teaching fellowships and have been taking special training in the department of surgery at the University of Minnesota Medical School, Minneapolis. Under the terms of their new fellowships they will devote from two to three years to the study of cancer.

Annual Expedition to Greenland

Eleven college students were included in the party accompanying Capt. Robert A. Bartlett on his twelfth annual expedition to Greenland, which sailed from New York June 20. The party will make reports on temperatures and water conditions to the Hydrographic Bureau in Washington and will collect specimens for the Cleveland Museum of Natural History and for the Smithsonian Institution.

Lost on the Clipper

Dr. Earl Baldwin McKinley, dean and professor of bacteriology and director of medical research at the George Washington University School of Medicine, Washington, D. C., and Fred Campbell Meier, plant pathologist of the Department of Agriculture, were on the Hawaii Clipper, lost over the Pacific, July 28. They were engaged in research on aerobiology and in making arrangements for the continuation of the collection of micro-organisms, viruses, pollens and dust in the upper air by officers of the trans-Pacific airships.

Associate Wins Trip to Switzerland

Clay Myers Greer, M.S., research associate in pharmacology, Vanderbilt University School of Medicine, Nashville, Tenn., was awarded a prize by the committee on international congresses of the Federation of American Societies for Experimental Biology. The prize will be a trip to the International Physiological Congress in Zurich, Switzerland, in August. Mr. Greer's work was on "Nor-Epinephrine [β (3,4-Dihydroxyphenyl)-β-Hydroxyethylamine] as a Possible Mediator in the Sympathetic Division of the Autonomic Nervous System."

Dr. Code Receives Theobald Smith Medal

Charles F. Code, Rochester, Minn., will receive the second Theobald Smith Award in medical science, it was announced at the meeting of the American Association for the Advancement of Science, June 30. The presentation will take place at the winter meeting of the association. Dr. Code was selected "in recognition of his discovery that histamine is normally present in human blood and when present in abnormal amounts indicates tuberculous infection or an allergic reaction to the presence of foreign proteins in the body." Dr. Code graduated from the Manitoba Medical College in 1934. He entered the Mayo Foundation as a fellow in physiology, July 1, 1934. The Theobald Smith Award, consisting of a bronze medal and $1,000, was established in 1935 by Eli Lilly & Co., Indianapolis, to be awarded to an investigator under 35 years of age for "demonstrated research in the field of the medical sciences taking into consideration independence of thought and originality."

Intern Wins the Burr Prize at Philadelphia

Dr. Samuel Koppelman received the Charles W. Burr prize for interns at the Philadelphia General Hospital June 30 for a thesis entitled "Effects of Large Doses of Insulin on Blood Hydration in Man." The prize is $100.

Graduates Accept Reserve Corps Commissions

Forty-five commissions as first lieutenants in the medical and dental reserve corps of the U. S. Army were presented to graduates of the schools of medicine and dentistry of Baylor University at commencement exercises, June 6. Dr. Hardy A. Kemp, professor of bacteriology at the medical school, who holds a major's commission in the medical reserve, was in charge of the exercises and the principal speaker.

Scholarship in Psychiatry

A Woolley scholarship in Paris is offered an American student in psychiatry for the year beginning October 1. The scholarship consists of $600 and a room in the United States House of the Cité Universitaire in Paris, under whose auspices the offer is made. According to *Nature*, the candidate must be an American citizen. Application should be made to the Institute of International Education, 2 West Forty-Fifth Street, New York.

Mercy Hospital Becomes University Hospital of Loyola

Mercy Hospital, 2536 Calumet Avenue, Chicago, has recently become University Hospital of Loyola School of Medicine, which is on the north side, and will henceforth be known as Mercy Hospital, Loyola University Clinics. Dr. Robert S. Berghoff, Chicago, has been appointed medical director of the institution. Dr. Berghoff is clinical professor of medicine at Loyola. He graduated from St. Louis University School of Medicine, St. Louis, in 1913.

Reunion of Former Interns at Rhode Island Hospital

The second reunion of former interns will be held at the Rhode Island Hospital September 9-10. Dr. Herman C. Pitts is general chairman; Dr. Henry S. Joyce, general secretary and treasurer. The mornings will be devoted to clinics and clinical demonstrations at the Peters House. There will be a five year study of gallbladder cases, demonstration of a vascular boot originated in the hospital, motion pictures illustrating a new method of cystotomy, a demonstration from the gynecologic research department, improvements in orthopedics and fracture treatment, and a demonstration of neurologic methods by former interns who are now members of the staff of Butler Hospital. There will also be a fracture clinic, thoracic clinic, tumor clinic, demonstration of cardiology and a clinical pathologic conference.

On Friday afternoon the papers given by visiting former interns will be read. Dr. Reeve H. Betts of Boston will speak on "Some Aspects of Nontuberculous Thoracic Therapy" and will show motion pictures of various thoracic operations. Dr. Nat H. Copenhaver, Bristol, Tenn., will read a paper on the history of the thyroid. Dr. Arthur H. Morse, professor of obstetrics and gynecology, Yale University School of Medicine,

New Haven, Conn., will read a paper on "Pathology and Treatment of Antepartum Hemorrhage." Dr. John P. Macnie, New York, will present an ophthalmologic subject. Dr. Harold G. Tobey, Boston, will speak on "Allergy" and Dr. James E. Paullin, Atlanta, Ga., on "Cardiovascular Syphilis." This meeting will be held at the Aldrich House Auditorium.

Saturday afternoon a Rhode Island clambake will be served at the Squantum Club.

The Status of Interns in California

The Board of Medical Examiners of the State of California sent a letter to all hospitals in the state relating to the status of interns in hospitals. The board pointed out that the Business and Professions Code provides that no person may practice any system of treating the sick unless he has a valid unrevoked certificate to do so. An exception is made in the code of students regularly matriculated in any legally chartered school approved by the board, provided the treatment is without compensation to the student and is a part of his course of study. This means that interns must be regularly matriculated students in legally chartered schools approved by the board of medical examiners or they cannot treat the sick, and that as interns they are prohibited from treating the sick except as a part of the regular course of study. It appears, the board wrote, that any person not regularly matriculated in a school approved by the board who might treat the sick in a hospital might in so doing bind the hospital for his acts in such a way as to make them guilty of violating the section of the code which states that "corporations and other artificial entities have no professional rights, privileges or powers."

New York Personals

Carlyle F. Jacobsen, Ph.D., assistant professor of psychology at Cornell University Medical College, has been appointed professor of medical psychology at Washington University School of Medicine, St. Louis. Dr. William M. Cahill, instructor in biochemistry at the Cornell University Medical College, has been appointed instructor in the department of physiologic chemistry of Wayne University College of Medicine, Detroit.

Alumni Meetings in Texas

Dr. George W. McCoy, formerly the director of the National Institute of Health, Washington, D. C., was the principal speaker at the recent commencement of the University of Texas School of Medicine in Galveston; his subject was "The Goal of the Future—Better Medical Service."—Dr. Charles Gordon Heyd, New York, formerly President of the American Medical Association, delivered the recent commencement address of Baylor University College of Medicine, Dallas, on "Medicine in a Changing World." Dr. Heyd also addressed a luncheon meeting sponsored by the alumni and faculty of the university; this address was entitled "The Opportunities of a Great Medical Center as Offered by Dallas and the Southwest."

Alpha Omega Alpha Awards

At the annual commencement of New York University College of Medicine June 8 the Alpha Omega Alpha Prizes were awarded to Drs. Robert Franklin Pitts, Milton Sapirstein and Rudolph E. Drosd for the highest scholarship in the fourth year class. Dr. Robert Pelton Wadham received the 1938 alumni award for meritorious service to the university. There were 134 graduates.

Appointments and Promotions at Temple

Recent appointments to the faculty of Temple University School of Medicine, Philadelphia, include the following:

Dr. Michael Scott, associate in neurosurgery.
Dr. Richard P. Thompson, clinical assistant in surgery.
Dr. Jefferson Neafie Richardson, clinical assistant in dermatology and syphilology.
Dr. Mason Royden C. Astley, clinical assistant in surgery.
Dr. Thomas A. Campbell, resident in radiology.
Dr. Augustin R. Peale, III, special resident in radiology and pathology.

The following promotions were also announced:

Dr. Lowrain E. McCrea to assistant professor of urology.
Dr. Alexander Silverstein to lecturer on neurology.
Dr. Leon Hugh Warren to instructor in dermatology and syphilology.
Dr. Robert K. Arbuckle to instructor in radiology.

The address at commencement exercises, June 16, was given by Secretary of the Treasury Henry Morgenthau. There were 113 graduates.

Guide Service at Harvard

Guide service is now available at Harvard University Medical School, Boston, and will continue through September 17. During the summer of 1937, when the service was first introduced, about 11,000 visitors were taken through the various divisions of Harvard University.

Medical Care for Students at Maryland

Provision has been made for the systematic care of students in the medical school, including a physical examination of all students during the first week of the semester. A student must pass this examination before he is finally accepted as a student. Students in need of medical attention will be seen by the school physician in his office or in cases of necessity in their homes. If it becomes necessary for a student to enter the hospital during the school year, the medical council has arranged for payment of part of all his hospital expenses, depending on the length of stay and special expenses incurred. This regulation applies only to students admitted to the hospital through the school physician's office. Prospective students are advised to have any known physical defects corrected before entering in order to prevent loss of time. It is especially urged that all new students have their eyes examined and any error of refraction corrected before beginning the course.

Koessler Fellowship Awarded

The Jessie Horton Koessler Fellowship for the aid of research in biochemistry, physiology, bacteriology or pathology has been awarded for 1938-1939 to Ralph E. Kirsch, M.A., who has completed three years of the medical course at the University of Chicago. Mr. Kirsch's study of the control of length of gestation in mammals, with especial reference to the physiology of the placenta and uterus, will be carried on under the direction of Dr. Allen T. Kenyon, assistant professor of medicine, School of Medicine, Division of Biological Sciences, University of Chicago. The fellowship was established in 1930 under a bequest of $10,000 from Dr. Karl K. Koessler; the income from the gift defrays the expense of the annual award. It is administered through the Institute of Medicine of Chicago.

Maryland Personal

Dr. Lewis H. Weed, professor of anatomy and director of the department, Johns Hopkins University School of Medicine, received the honorary degree of doctor of laws from Duke University at the recent commencement.